

# SD Times

SOFTWARE DEVELOPMENT

The Industry Newspaper for Software Development Managers



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## XBRL Revolution Has Begun for Reporting

### Financial information spec emerging

BY DAVID WORTHINGTON

Extensible Business Reporting Language (XBRL) is poised to revolutionize financial reporting and analysis in the United States—provided stakeholders react favorably to a draft of the XBRL US GAAP Taxonomies. Its acceptance could clear the way for a mandate from the U.S. Securities and Exchange Commission later this year.

The draft, published on Dec. 5 by XBRL US, a consortium dedicated to the standard's adoption in the United States, is under public review until the comment period ends on April 4, 2008. XBRL US is encouraging audi-

tors, investors, financial analysts, public company preparers and software providers to participate.

XBRL is an emerging XML-based standard to define and exchange business and financial performance information and is governed by the not-for-profit international consortium XBRL International. The taxonomies provide a set of tags that represent Generally Accepted Accounting Principles (GAAP) for financial reporting.

Both the European Union Central Bank Supervisors and the U.S. Federal Deposit Insurance Corp. have adopted XBRL

continued on page 26 ►

## Coghead to Flex With Amazon's Services

BY ALEX HANDY

It seems that old FileMaker applications never die, they just move onto a server underneath someone's desk. In an effort to eliminate such legacy data-driven applications, Coghead has moved its Web application development environment onto the Adobe Flex platform, and reinforced its online offerings with Amazon's hosted services.

Developers searching for a quick and connected way to replace aging spreadsheets and Microsoft Access applications might seek out Coghead's rich client, which according to the company serves as both a development and a runtime environment for SaaS-like applications.



The various projects that users are building inside Coghead can be managed centrally from within the multipurpose Coghead client.

The client software enables drag-and-drop application design, and backs it up with SaaS-style hosting in Coghead's

servers. But with version 2.0, those servers have been transferred into Amazon's cloud of

continued on page 20 ►



### R.I.P. NETSCAPE

Saying goodbye to the Web browser that once defined the Internet.

page 27

## New Roles, Rules Take Getting Used To

### Dealing with 'people' issues hardest part of agile adoption

BY JENNIFER DEJONG

Every organization that embarks on agile development finds itself in uncharted territory. Bosses no longer call the shots. Analysts, developers and testers team up and wear one another's hats. And business stakeholders are asked to participate in software projects more fully than ever before, often putting their day jobs on hold. Navigating these new roles and rules of agile organizations feels unfamiliar, and often uncomfortable.

That's the conclusion SD

Times reached based on interviews with more than 20 analysts, consultants, developers and tool makers involved in agile projects.

One of the first things teams discover is that existing job roles correspond with project stages of waterfall development: analysis, architecture, coding and testing.

That's a poor fit for agile, where team members are asked to do a little bit of everything, said IBM Rational practice leader for agile development Scott Ambler. "Agile teams need generalizing specialists." But that

role is hard to come by, he said. Instead, teams struggle to align outdated roles with the new development approach. "What happens to the business analyst?" Ambler said. "Agile says: 'Do analysis 20 minutes a day. The rest of the time you write code.' That is pretty tough."

It's so tough that some agile teams choose not to adhere to that particular practice, said Ray Goodman, a senior vice president for inventory software developer Direct Tech, which adopted Scrum a couple of years ago. "In

### The Impact of Agile



SECOND OF A THREE-PART SERIES

JAN. 1: Agile Changing Everything  
TODAY: New Roles, Rules Required  
FEB. 1: Putting a Slant on Tools

theory, Scrum team members pick the tasks they want to do," he said. But in reality, people stay within their areas of expertise. "We have user interface experts,

continued on page 29 ►

### IN THIS ISSUE

IBM Donates Accessibility Framework to Eclipse .....6  
Veracode Tightens Guard at Back Door .....11  
Sybase Refreshes WorkSpace Tooling .....12  
JSR 317 Persistently Improving .....18  
Software AG Continues SOA Buying Spree .....24  
Nexthaus Ships Beta of iPhone Sync Client .....31



Microsoft Inadvertently Ships Deleted Files page 5

O'BRIEN: Crushed by Technical Debt? .....39  
BINSTOCK: Patterns as an Anti-Pattern? .....39  
LINTHICUM: Have You Made Your SOA Resolutions? ...41  
RUBINSTEIN: Sticking to It .....42

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# Microsoft Inadvertently Ships Deleted Files

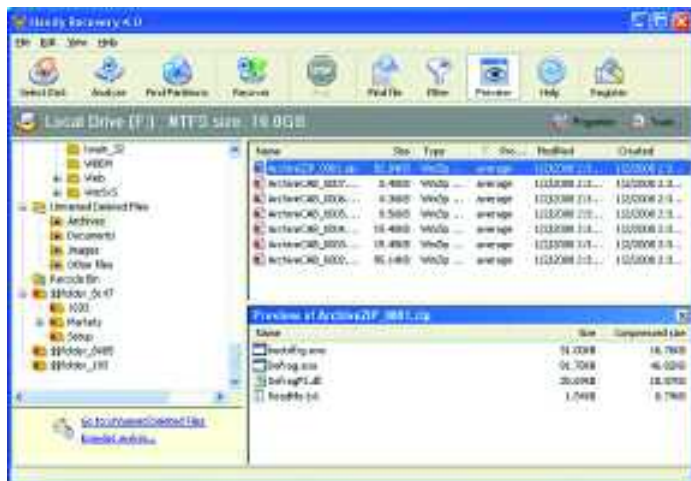
## Disk image with evaluation software not properly wiped

BY DAVID WORTHINGTON

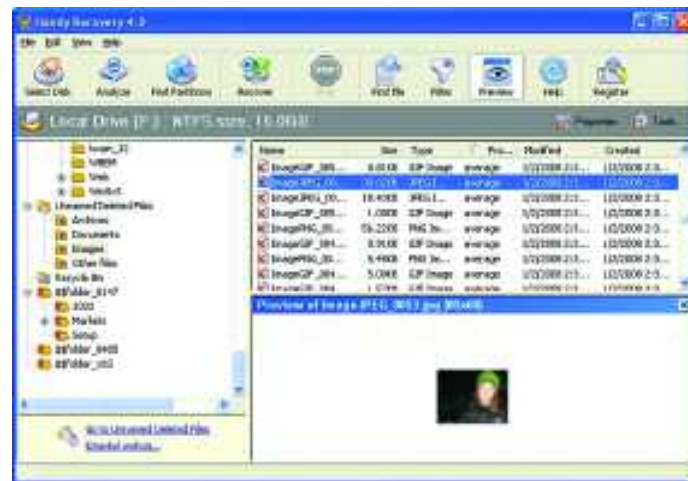
New technology may not always carry the seeds of destruction, but the possibility for a good pantsing is always there.

Microsoft's use of virtual machines to distribute evaluation versions of software saves the end user much of the pain of having to configure test systems. However, it also introduces a new quality control issue by exposing the full dimension of data that was on the system when the virtual machine's disk image was created. Last month, that issue caught Microsoft off guard.

The company began making disk images, or Virtual Hard Drives (VHDs), with evaluation versions available on a limited basis in 2005 and more generally accessible through Microsoft TechNet in November 2006, and had provided a way for partners to build their own prepackaged software stacks,



Microsoft deleted a copy of Whitney Defrag before it shipped the Internet Explorer VHD.



The VHD also contains a picture of an unidentified woman.

using the Virtual PC technology it acquired from the now-defunct Connectix in 2003.

Last month, SD Times learned that at least one of the machine images available for download at TechNet did not have its free space wiped, and files thought deleted proved recoverable from an evalua-

tion copy of the Internet Explorer Application Compatibility VPC Image.

Although there didn't appear to be anything sketchy in that disk image, SD Times did observe what appeared to be a deleted third-party boot-time defragmenter program.

It also appeared that a Windows XP (with Service Pack 2) CD had been copied to the virtual PC's hard drive and deleted. If the person that made the image deleted the XP files as the last thing she did, it might be possible to recover the entire CD. But in this case, other files were presumably added to the image

after the deletion, thus overwriting many files.

A Microsoft spokesperson was unavailable when asked if it had a policy on how to prepare a VHD for distribution.

Voke analyst and founder Theresa Lanowitz remarked that it appears as if Microsoft lacked proper quality control. "It speaks to the process being not clearly defined. There are so many instances of things like that in the past," she said.

Lanowitz speculated about the consequences if Microsoft had left some sort of confidential or proprietary information on the VHD and it got out and was propagated across the Web. "If it was someone else's source

code, it would be a violation of IP at the point," she said.

"Microsoft has been the quintessential software distributing company for decades. This is one of the things you would expect to see [with unsupervised rookie developers] but not from a company like Microsoft. It goes back to QC best practices; virtualization or not, there is always a security risk you've got to be able to manage." She continued, "It is almost as if they didn't know any better, but they certainly do."

Lanowitz added that management and security are areas that have to be kept in mind as the industry moves down the virtualization path. ■



*'It is almost as if they didn't know any better, but they certainly do.'*

—Theresa Lanowitz, analyst and founder of Voke

# Whitehurst Dons Red Hat Crown

## Red Hat brings in former Delta Airlines COO as new president and CEO

BY JEFF FEINMAN

Red Hat announced that Jim Whitehurst has been named the company's president and CEO, taking up the position on Jan. 1.

Whitehurst had been serving as COO, and in other roles, for Delta Airlines since 2002, and was the vice president and director of the Boston Consulting Group prior to that. He succeeds Matthew Szulik, who said he was stepping down from his post due to family health issues.

With the change in leadership, analysts say that Red Hat's main focus needs to be maintaining the momentum of the JBoss application server. "They're competing with signif-

icant players there: Microsoft, IBM, Oracle, BEA and SAP as the 'super-platform' players," said Anne Thomas Manes, vice president and research director at Burton Group. "The JBoss application server is more widely deployed than any other application server with the possible exception of IBM WebSphere. For Red Hat, it is wonderful to have an open source alternative to the offerings of the major commercial vendors."

Szulik joined Red Hat in 1998, and will remain chairman of the board of directors. "For nearly a decade, Matthew Szulik's vision and leadership legitimized free, open source software as an innovative and

profitable business model," noted William Kaiser, lead director of Red Hat's board of directors, in the announcement. "From Red Hat's early days as a small, private company, Szulik transformed Red Hat into a globally recognized brand whose approach to technology development and customer service has redefined the software industry."

According to Red Hat officials, Whitehurst's operational experience with a global company such as Delta will help Red Hat continue to maintain annual revenues of over US\$1 billion. A native of Columbus, Ga., Whitehurst handled sales, operations, customer service and network and revenue man-

agement in his COO role at Delta. He graduated from Rice University with a bachelor's degree in computer science and economics.

"Red Hat has changed the way people consume technology," Whitehurst said in a statement. "This is an outstanding company that I feel privileged to join. Our outlook is positive with strong technology, great people, solid management and a global brand. Red Hat leads the software industry in delivering value to its customers. I welcome this opportunity to lead Red Hat into the future."

Additionally, Red Hat announced total revenue of \$135 million for its third fiscal quarter ending Nov. 30. That



Jim Whitehurst, pictured, succeeds Matthew Szulik, who remains on the board of directors as chairman.

total was an increase of 28 percent from the same quarter a year ago and 6 percent over the previous quarter. Subscription revenue was \$115.7 million, up 30 percent from a year ago. ■

**NEWS BRIEFS****COMPANIES**

Open source business intelligence provider **JasperSoft** has announced that its iReport graphical report and dashboard design tool now has the capability to work with the NetBeans 6.0 IDE. iReport for NetBeans can be deployed into custom desktop and Web applications, along with the JasperServer Web-based reporting server. . . . **Grid.org** reported that in its first month of existence, it had signed up almost 500 members and recorded more than 900 downloads of the initial beta of its free open source Cluster Express project. A second beta became available in December, and further enhancements to the Grid.org community site are expected in the first quarter of 2008.

**NEW PRODUCTS**

JEDA Technologies, which provides electronic system level design tools, has announced the availability of **NSCvCC**, a code coverage product for C/C++ and SystemC designs. It is built on top of NSCv, JEDA's native SystemC verification environment.

**UPDATES**

Rally Software has released **Rally 2007.7**, its agile project management tool. The latest version of the tool comes with improved release burndown charts for predicting when releases will be ready for delivery, simplified notifications rules so users can be notified of only the changes that matter to them, and a new Web services API. . . . Dundas Data Visualization has released **Dundas Chart for SharePoint 1.5**, a charting component designed specifically for Microsoft's SharePoint portal technology. The new version of the chart comes with the ability to automatically apply financial and statistical formulas within the SharePoint design user interface, along with the capability to send data to other SharePoint Web Parts. . . . Palamida, a provider of open source software risk management tools, has expanded its **Vulnerability Reporting Solution** detection capabilities to include 431 open source security alerts. . . . Application and data integration software company Attunity



has released version 5.1 of its **Attunity Integration Suite**. The new version comes with a change data

capture technique called continuous CDC, which supposedly enables extract and load tools to use standard SQL query and continuously feed only changed data records for processing. . . . Eiffel Software has released **EiffelStudio 6.1**, the latest version of its IDE. EiffelStudio 6.1 brings new features such as basic elements of the ISO standard attached type mechanism, which company officials said will allow programmers to guarantee the absence of null pointer dereferencing. Another new feature in the updated version is nonconforming inheritance, which Eiffel officials said would provide more flexible inheritance capabilities. . . . Xtenit, which focuses on e-mail and content management, has announced the release of the **Xtenit Subscriber API**, an XML request and response protocol for use in customized applications developed with JavaScript, portlets and other Web 2.0 tools. The company claims that by using the API, applications will automatically maintain session data for easy control of subscriber login activity and status. . . . Open source ERP specialist xTuple has announced the general availability of version 2.3 of **xTuple Applications, PostBooks** and **OpenMFG**. The company provides ERP tools built on open source components, including the Open RPT report writer, the PostgreSQL database and the Qt toolkit for C++.

**PEOPLE**

**Jared Richardson** has joined 6th Sense Analytics as an agile coach and software development evangelist. In early 2007, Richardson founded AgileRTP, the agile users group in North Carolina's Research Triangle Park. In his new position, Richardson will help 6th Sense customers integrate the company's tools into their process. ■

# IBM Accessibility Framework Now Accessible via Eclipse

## First piece to be delivered, aiBrowser, helps visually disabled with video content

BY ALEX HANDY

With a lot of help from IBM, Eclipse is making Web sites more accessible to the visually impaired.

IBM in December began contributing pieces of its Accessibility Tools Framework to the Eclipse Foundation. Over the next six months, the company hopes to make the entire framework available, including validation and testing tools for assessing the usability of Web sites for the disabled.

The Eclipse Foundation now has under its umbrella IBM's aiBrowser, which allows embedded video content to be made more accessible to users with visual disabilities, but future code drops will greatly expand the framework.

Mike Squillace, software engineer at IBM, said that the framework adheres to IBM's internal accessibility guidelines, which he said were stricter than those mandated by the federal accessibility guidelines, also known

as section 508 of the U.S. Rehabilitation Act.

He said the Accessibility Tools Framework—known internally as ACTF—is “basically two things: First, it's a collection of software components that can be used by developers to build accessibility tools. It includes visualization engines, validation engines and a screen reader. We give you a validation engine that can validate a Java application against a certain set of guidelines, like section 508. We also give you the ability to extend those guidelines,” said Squillace.

Being blind, Squillace is keenly aware of the current shortcomings of the Web. Most notably, he said, was the fact that Adobe Flash applications embedded in the Web are to him a black hole. With few to no accessibility standards or facilities built into Flash, many sightless users can't parse the information stored in Flash files.

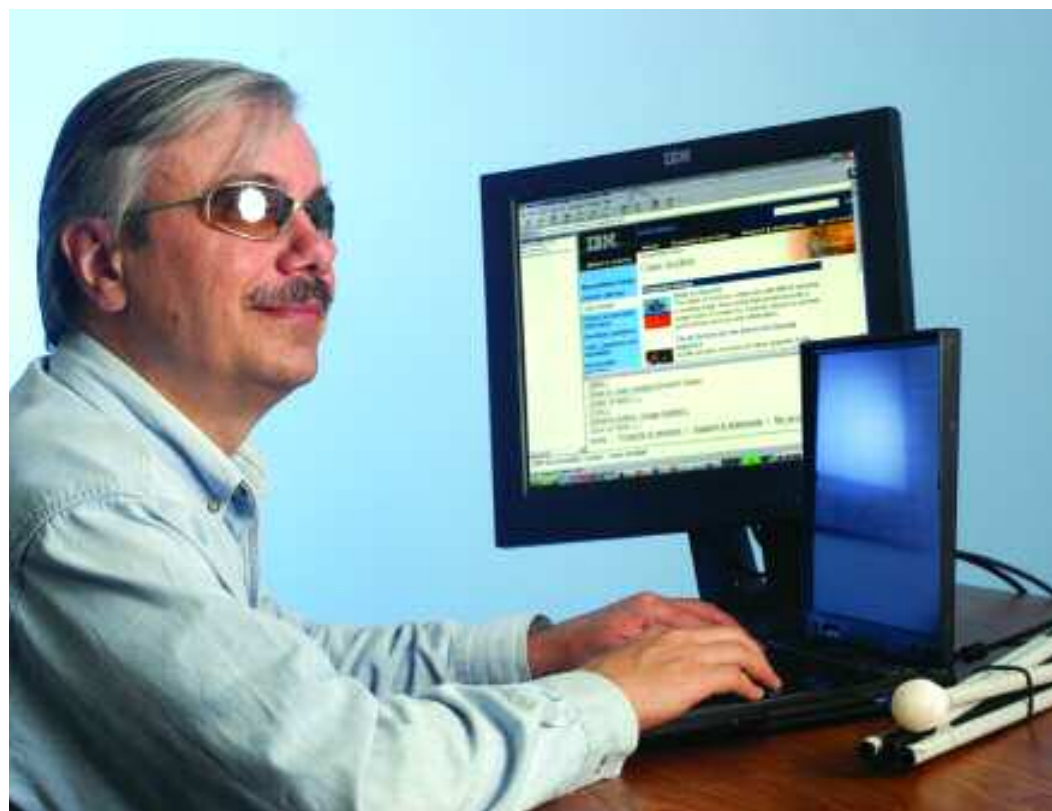
While ACTF doesn't yet solve the Flash problem,

IBM's Tokyo-based development teams have managed to ensure that users with minimal visual capabilities can use video players embedded in Web browsers.

The aiBrowser, which is the first piece of the framework to have arrived as an open source project, can be used to make the controls on video players larger and easier to handle. Tiny play buttons, said Squillace, can befuddle disabled users who may have trouble finding on-screen cues or controlling a mouse accurately.

The validation engines in the Accessibility Tools Framework will be arriving at the Eclipse Foundation over the next six months. Squillace said he hopes that the framework will help make accessible Web sites easier to develop.

In the future, Squillace and his team also hope to extract the validation engines from Eclipse and build them into a standalone application that can be used in nightly test batteries. ■



Guido Corona is a blind IBM employee who uses the company's accessibility technology.



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# Collaboration Key at Canadian College

BY JEFF FEINMAN

Even when she's entrenched in a computer science lab in western Canada, Daniela Damian is seeking ways to leap across continents.

Damian, an associate professor in the department of computer science at the University of Victoria in British Columbia, is leading a research lab to improve software collaboration upon IBM's Jazz collaboration platform. The university has developed two prototype tools that address challenges involving project complexities and geographic distribution.

Given an IBM Jazz Faculty Grant back in mid-October, university students and faculty are doing investigations into ways that software teams on the global level can achieve an ideal collaboration setting. They're using two features of Jazz, the Related Contributors Recommender and the Feature Awareness Team Explorer, to help team members keep track of expertise, and visually understand social and artifact relationships.

"Our prototypes try to mine relationships from the develop-

ment environment and present them to a developer," Damian said. "It's information that's in the system and in the environment, but it's not at their fingertips. So we want to put it at their fingertips."

## TO GRAPH OR NOT TO GRAPH

The prototypes will be displayed and delivered either in the form of a graph visualization or as a list. The graph visualization has already been built, but more user tests will be conducted to make sure that is the best form of display. It shows the number

of artifacts that a development team member is working on, and the people associated with those artifacts. People are grouped and identified by artifacts, whether they are a piece of code, a work item, a requirement or a feature.

"If I work on code that is related to a work item that someone else worked on as well, then they are visualized in that graph for me," Damian said. "If someone else gets assigned to a work item, and that person's in Ottawa and I'm in Victoria, I may not know that that person got assigned also. The system would

find that out and visualize [it]."

The main benefit that Jazz brings, Damian said, is traceability links between artifacts and people that are already held within the system.

The tool then leverages those links and computes the elements of the graph and displays it to the developer. What the university's research is attempting to do, she said, is to identify the scope of that network and find the boundaries of collaboration. All tasks are related to some degree, and the research is focusing on the related contributors to a

developer's current work.

The University of Victoria was one of three universities to receive IBM Jazz Faculty Grants, the others being the University of California, Irvine and the University of British Columbia. The Irvine team is exploring the use of multimonitor environments to improve project awareness and development practices. The University of British Columbia has built an extension of Jazz called the Emergent Expertise Locator Tool, which helps software development collaboration in a team environment. ■

## PERL 5.10 BOASTS FASTER EXPRESSIONS

BY ALEX HANDY

On Dec. 18, Perl turned 20 years old. To honor the anniversary, the Perl community released version 5.10 of the language. The new version brings a host of new commands and features to the Perl world, including state variables for subroutines and the ability to build named captures in regular expressions.

For developers still using Perl 5.8.x, the new version of the lan-

guage rolls up all the previous bug fixes into a single install package. 5.10 includes a newly added switch statement, which uses a "given, when" format.

Another change in 5.10 makes it easier to build recursive patterns. Inside of those patterns, developers can now build named capture buffers, making it easier to work with data.

Perl creator Larry Wall is currently working on Perl 6.0, a ver-

sion of the language that has been in development for a number of years now. In September, Wall wrote about Perl 6.0 in his annual "State of the Onion" address.

"A couple of years ago," he noted, "Tim O'Reilly asked me what great problem Perl 6 was being designed to solve. This question always just sat in my brain sideways because, apart from Perl 0, I have never thought of Perl as the solution to

any one particular problem. If there's a particular problem that Perl is trying to solve, it's the basic fact that all programming languages suck. Sort of the concept of original sin, applied to programming languages."

The new version of Perl isn't the only part of the celebration. Developer Michael Schwern has ported Perl 1.0 to modern compilers for nostalgia's sake and pushed the whole stack into a Subversion repository at [svn.unixbeard.net/richardc/perl/perl-1](http://svn.unixbeard.net/richardc/perl/perl-1). ■



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# IBM Beefs Up Data Studio With Developer-Focused Tooling

BY P.J. CONNOLLY

Data management is becoming a hot-button issue for many developers, with a growing concern over how data is handled and the emergence of regulatory schemes meant to provide

standard controls on the use of data, whether inside the data center or outside. Perhaps the most important consideration, however, remains the scalability of an application in a world of ever-expanding datasets.

IBM took a step in that direction last month when it updated its IBM Data Studio, which was introduced in October at the company's Information on Demand conference in Las Vegas. The initial release, a free

download that supported IBM data servers, was described by Grant Hutchison, Data Studio product manager, as an extension of the Eclipse Data Tools Project, with extra capabilities designed specifically for IBM's

DB2 and Informix data servers.

But new this time around are IBM Data Studio Developer and a pureQuery runtime for IBM Data Studio, designed to provide developers with what Hutchison called a "highly optimized Java data access framework." He later noted, "Data access becomes the key point when you start scaling up applications, and [many] frameworks don't really address that."

## A FAMILY AFFAIR

IBM Data Studio will eventually be a family of products, he said, incorporating existing tools such as Rational Data Architect, and extending support to data servers from other companies.

"One of the aspects of pureQuery is to take the power of the SQL language and bring it into the Java programming environment in a way that makes it very easy for Java developers to use," he explained. "When result sets are returned from this pureQuery-type SQL, the results become a collection of Java objects, so it's very easy for a Java developer to use."

"When it's time to roll out these applications," he continued, "there's a deployment option that allows you to not just execute the application in a dynamic SQL way...we allow them to deploy into static SQL, a preoptimized access plan that's supported across the DB2 family. That gives better application performance, better governance and an improved security model."

"Data Studio Developer extends the development environment for Java projects," he claimed. "That could be done with Data Studio Developer on its own, and integrate that with whatever your Java IDE is, or you can install Data Studio Developer into the latest version of Rational Application Developer." Using the static access plan in DB2, he noted, "gives you a much more resilient response time; it's more predictable, because the queries are not being looked at every time they're executed."

The pureQuery runtime, he added, "gets deployed with your applications into your Java application servers, whether they're WebSphere or another application server." ■



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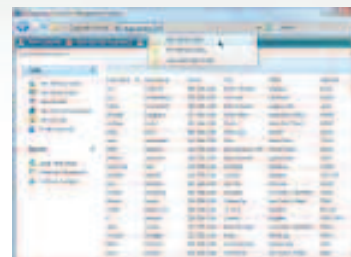
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# Veracode Tightens Guard at Back Door

## Software-as-a-service tool handles new forms of intrusions

BY JEFF FEINMAN

Veracode has updated its SecurityReview software security testing tool to offer new back-door detection capabilities.

Veracode executives say it can take several weeks to discover a back door inserted into software, leaving the application vulnerable to intruders. The new version of SecurityReview, released in mid-December, provides better detection of back-door intrusions and malicious code, according to Veracode. SecurityReview is a software-as-a-service security tool that Veracode officials claim is the industry's first on-demand security services on the market.

Some of the back-door techniques that the updated Veracode tool can help guard against include special credential back doors, which occur when an attacker inserts logic and special credentials into the program code, and hidden functionality back doors, which allow attackers to issue commands without proper authentication, Veracode officials said.

"The special credential backdoor is definitely the most commonly found, and it could be because it's fairly simple," said Chris Wysopal, CTO of Veracode. "At some point, it goes through the normal authorization functionality of the program, so you can trace back from there to find static values in the program.

"The hidden functionality is a little bit more difficult to find," continued Wysopal. "We look for signs that someone is trying to obfuscate the changes they made to the code. This is a common technique people use. Instead of putting the password in an embedded string, they might make it look like it's random data, and when data is obfuscated within the binary, that sort of raises the flag in our analysis that there could be something there."

Wysopal said that one common hidden functionality technique that Veracode frequently finds in customer code is when debugged code is left enabled in the binary; whether intentional or otherwise, it's still a large vulnerability, he said.

The updated Veracode service also defends against rootkits,

which can signal that a back door may be present. Rootkits can subvert functions of the operating system and are used to hide

backdoors. Additionally, the tool can now scan for unintended network activity such as listening on undocumented ports, making

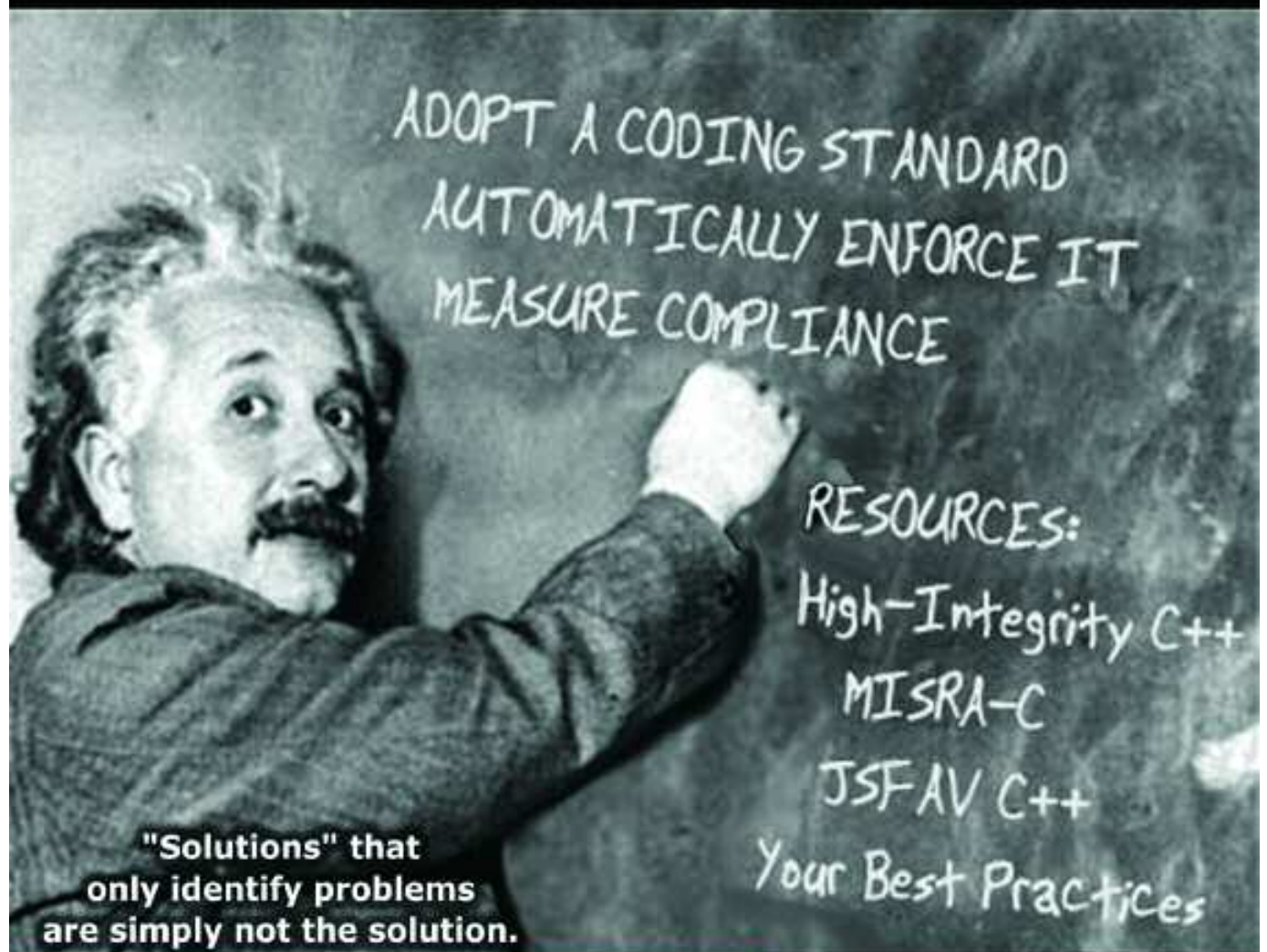
outbound connections to establish a command and control channel, or leaking sensitive information over the network via

SMTP, HTTP or other protocols.

Wysopal said that code audits are a good way to find back doors, but that automated activities can also be a great help in uncovering them. Simply grepping the source base for back-door vulnerabilities can serve as a useful test before building an application, he added. ■

# Intellectuals solve problems. Geniuses prevent them.

— Albert Einstein



## THINK PREVENTION GET QUALITY

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# Sybase Refreshes WorkSpace Tooling

## Eclipse-based framework adds code generation and data migration

BY P.J. CONNOLLY

Just in time for the holiday slowdown, Sybase delivered updated tooling in a new version of its WorkSpace IDE that was aimed

at supporting the company's flagship database, as well as other parts of the product lineup.

WorkSpace 2.0 is available now and was updated with sup-

port for Sybase Adaptive Server Enterprise 15, including such features as DDL generation and ad hoc data migration and query capabilities. The new release,

based on Eclipse 3.3, also incorporates technology through plug-ins that borrow from the Eclipse Data Tooling Platform (DTP) and Services Kit.

As Sybase product manager Loren Corbridge explained, "A lot of our interest and a lot of our focus for WorkSpace, particularly with this release, is on the database side. We're putting a lot more emphasis on IQ for this release and going forward."

The ability to generate code from data objects will prove helpful, according to Corbridge. "You can pull the objects out of an existing database, and generate the script for them and then save those using Eclipse...off to a source-code control system."

Corbridge, speaking of the data migration features, noted that "a lot of our customers on the ASE side" had requested it. "They want to be able to easily take data out of one database, and put it into another. This is critical for developers who are doing unit testing; as they go, they've got to be able to see what happens to the data, and inevitably the data you're using becomes all corrupt and messed up by the testing...and you need to be able to refresh it repeatedly."

The editing and debugging tools are a source of pride to Corbridge, who noted, "The debugger is really fabulous; in fact, it's one of the few that really handles temp tables. It will handle the creation and solution of temporary tables, it will show you the values that are in that temp table, it will show you results as they're coming through and how different temporary variables and global variables are changing as you're stepping through stored procedures in the debugger. It's really quite sophisticated."

The new release also allows users to create and manage Sybase Search servers, and provides broad support for notification of real-time database events. Corbridge said he expects that developers used to working with hard-copy data models would appreciate the immediate visibility that WorkSpace 2.0 offers. "We have a visual SQL builder that allows you to go in without having to know what columns are in your table, and...visually pick and get a window directly into the database. You've got your data model on one tab and your query and all the other things you're doing with development, or the debugger, on another tab."

WorkSpace 2.0 is available now, and pricing begins at US\$495 per seat. ■

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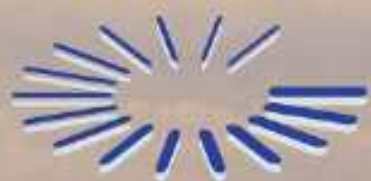
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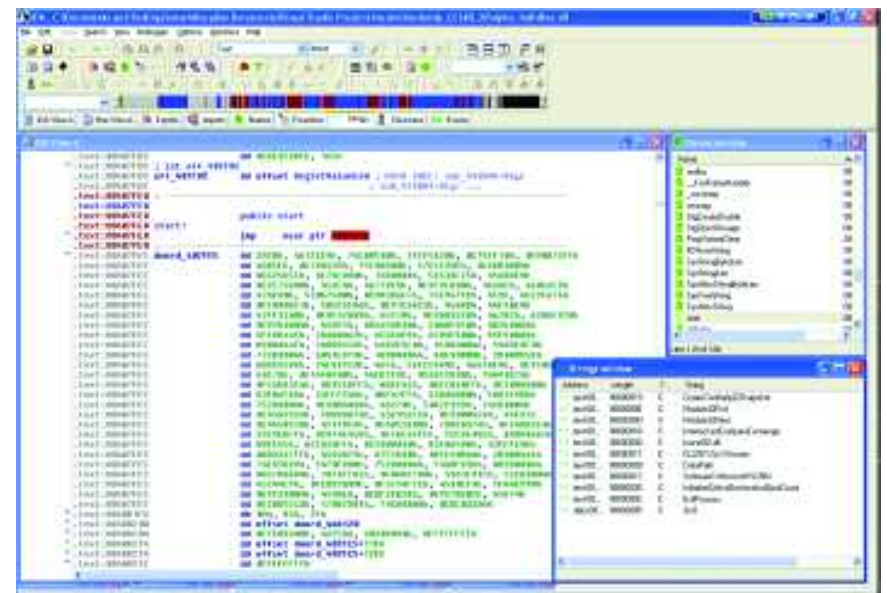
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Arxan GuardIT 3.0 puts blocks into code that can make it difficult for hackers to decompile applications in debugging programs like IDA Pro.

## Arxan Locks Code With Binary Insertion Engine

BY ALEX HANDY

For enterprise software developers, piracy is not typically the first concern. But for developers working with the U.S. Department of Defense or other government agencies, anti-piracy tools aren't just necessary, they can mean the difference between winning a contract and presenting again next year. Arxan has learned a great deal about dealing with military contracts, and in GuardIT 3.0, the company offers many new paths to protecting the information inside of software, and preventing reverse engineering.

"GuardIT is a binary insertion engine that works on your EXEs and DLLs," explained Mike Dulaney, a software engineer with Arxan. "It injects small units of code into the binary to secure it against various threats. We don't focus on buffer overflows or SQL injections; we focus on stopping software from being pirated."

That doesn't mean Arxan's technology is applicable only to vendors. Using GuardIT 3.0, developers can insert specific reactions that can be triggered when reverse engineering is detected. For example, the software barriers GuardIT

installs into an application can detect when a debugger is being used. "We use things like software breakpoint detection to tell if the software's been passed with breakpoints inserted," said Dulaney.

Thus, a developer using GuardIT to insert such detection could then trigger a reaction, such as the movement of critical data to a new point in memory or the encryption of core functionality.

Perhaps most intriguing for military contractors, however, are some of the more heavyweight reactions that can be triggered by GuardIT. If a guarded application is being reverse-engineered, developers could include commands that poll for an IP address, then send home critical information about the system and its location to a central server. Or, a guarded application could be triggered to delete encryption keys, a feature the Department of Defense considers a high priority, said Dulaney.

GuardIT 3.0 arrives on Jan. 17, and adds the ability to work with Linux as well as Windows. GuardIT can protect C, C++ and Fortran applications, and is priced on a customer-by-customer basis. ■

## Coverity's Static Analysis

BY DAVID WORTHINGTON

Coverity again is helping to unwind the intricacies of multithreaded applications and make testing for concurrency defects more automated and less like threading a needle.

An update to Coverity Prevent SQS (Software Quality System), released last month, introduces concurrency defect detection capabilities for C, C++ and Java applications. The new technology identifies deadlocks, race conditions and thread blocks that may lead to applica-

tion bottlenecks and failures, or information loss.

An interface was added to help developers understand the interleavings that exist in multithreaded applications and manifest the possible executions of a parallel program.

Coverity chief technology officer Ben Chelf explained that Prevent SQS uses deep interprocedural analysis to understand how locks that protect access points in parallel programming are acquired in a codebase. That ability is

# SOFTWARE FX CHARTS NEW COURSE FOR COMPONENT SUITE

BY DAVID WORTHINGTON

It stands to reason that labeling a product that works with Microsoft Visual Studio 2008 "for 2005" is likely to create confusion. With that in mind, Software FX has rechristened its latest update "Chart FX 7."

Chart FX 7, released Dec. 11, uses the same API as Chart FX for Visual Studio 2005 to maintain full compatibility with existing Windows Forms and Web Forms production code. With this release, Software FX integrated its charting and data visualization tools with Visual Studio 2008 to provide design-time parity with its Visual Studio 2005 installation.

What's more, Chart FX Gauges, Extensions Pack and Grid FX (the company's technology for creating graphical and tabular data in enterprise Web applications) are slated to support Visual Studio 2008 during Q1 2008.



The new name is more in line with future announcements, says Software FX's Garcia.

In a prepared statement, Stephen Potter, Grid FX architect and lead developer, explained that the extensibility mechanism within Visual Studio 2008 differs from the 2005 version, prompting the company to change the way it makes use of those facilities to integrate its software.

"Not only is the name more appropriate now that we have two versions of Visual Studio in the market, but it is more in line with future product announcements coming from Software FX," said Rene Garcia, president of Software FX, in a prepared statement. "As with any new version of a major development tool like Visual Studio, the adoption curve will take some time and we wanted to prevent unnecessary confusion from customers looking for a solution for Visual Studio 2008."

Chart FX 7 integrates with Visual Studio 2008. The screenshot shows the Visual Studio 2008 IDE with the Chart FX 7 interface. The main window displays a line chart with three data series (red, blue, and green) plotted against a grid. The left sidebar shows the 'Tools' menu with 'Chart FX 7' highlighted. The right sidebar shows the 'Properties' window for the selected chart. The bottom status bar indicates 'Chart FX 7' is active.

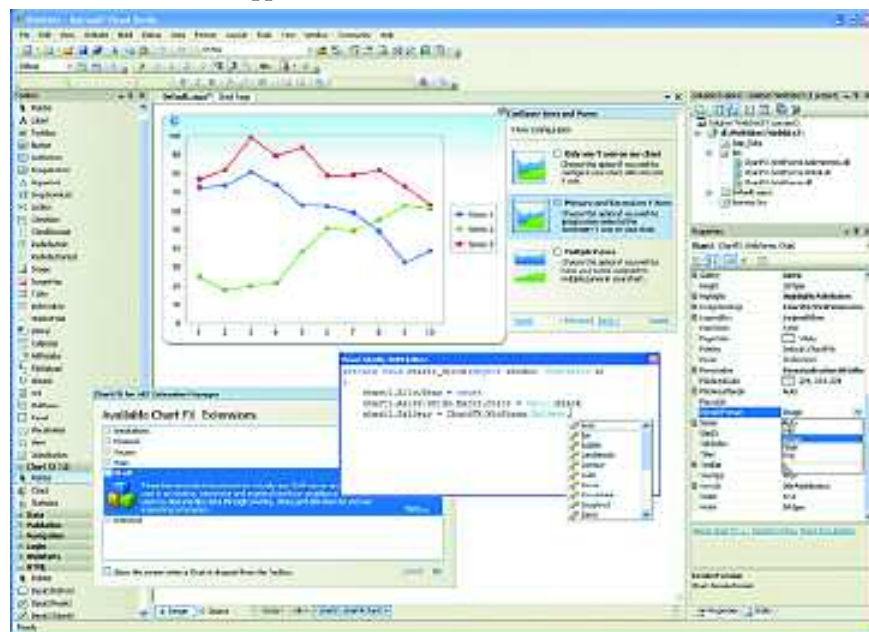


Chart FX 7 integrates with Visual Studio 2008.

## Erases Race Conditions

coupled with Coverity's SAT (as in Boolean Satisfiability) engine to reduce instances of false positives.

The SAT engine—concerned with whether a Boolean expression has a solution—debuted in September 2007 as a complement to the company's data flow analysis engine.

Chelf said that the advantage of using static analysis to test for concurrency defects is that developers do not need to worry about the particulars of scheduling while testing. "It removes depen-

dence on scheduling variables," he said.

"To remain competitive, software companies need to support multithreaded applications inevitable for most developers," Theresa Lanowitz, founder of analyst firm Voke, said in a prepared statement. "The challenge for developers is that multithreaded applications add complexity to the application life cycle, requiring new expertise and technology to maintain application quality and security."

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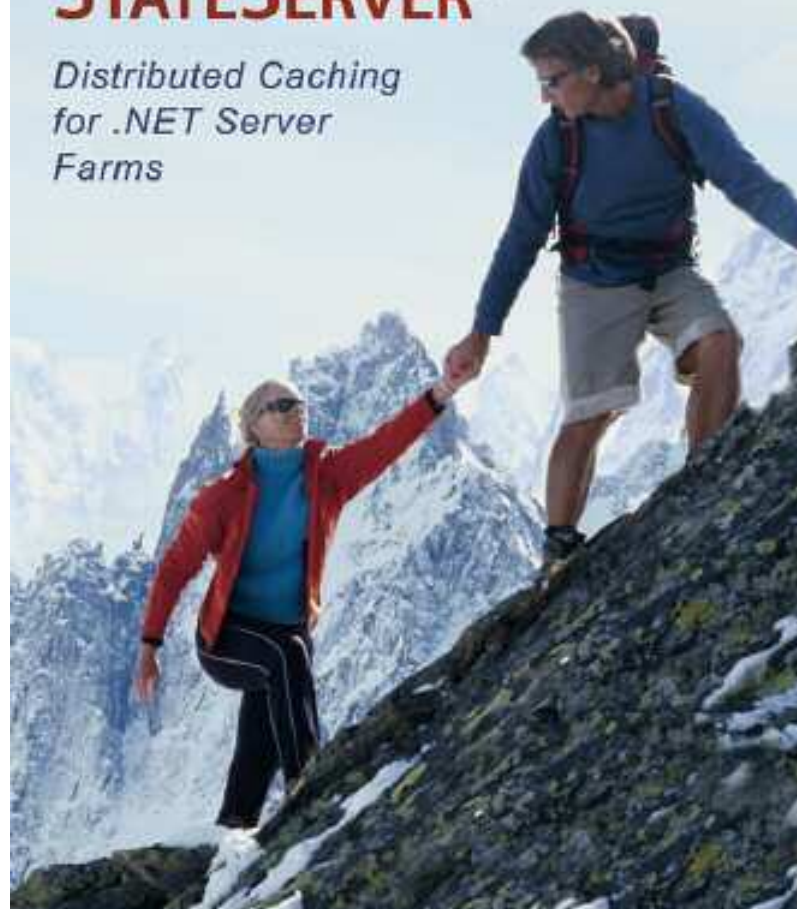
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# Major Browsers No Longer Drop Acid2 Test

Internet Explorer 8 and test builds of Firefox 3.0 offer stricter adherence to W3C standards

BY DAVID WORTHINGTON

The practice of developers optimizing for a single Web browser is almost extinct, as browser

makers, including Microsoft, are becoming sticklers for standards. Perhaps nothing underscores that point more than

Internet Explorer 8 passing a key standards test.

In mid-December, the Internet Explorer 8 product

team declared a milestone on its IEBlog: The browser had passed the Web Standard Project's Acid2 browser test. The

Acid2 test is a page written to help browser vendors ensure that Web standards are supported correctly.

A Microsoft spokesperson said that one of the goals for IE8 was to support the "right set of standards" without breaking the existing Web. "Successfully rendering Acid2 is an important landmark for IE8 as it highlights the interoperability, standards compliance and backwards compatibility that we're committed to for this release," Microsoft added.

The company anticipates that it will ship an IE8 beta 1 in the first half of the year; additional milestones will be determined by developer feedback.

IE8 is not the only browser to pass the Acid2 test. Preliminary builds of Gran Paradiso, the code name for Firefox 3.0, also render the page correctly, displaying its "smiley face" without any hiccups. The Opera browser has passed the test since version 9.

Mike Shaver, Mozilla's chief evangelist, explained that market demand and the resurgence of non-IE browsers provide the simple explanation for a stricter adherence to standards among vendors. According to Shaver, developers are building Web applications for the Web without reference to any specific browser.

"General demand has been influenced by the broader range of choices to interact with the Web, and [mobile] devices are a big part of that," he said, adding that the vendors are now more influenced by standards than they were in the past, when fixing bugs may have been given higher priority.

"[Mozilla] is glad to see all major browser vendors do the right thing with a rather complicated piece of standards testing, and [we] hope it's sign of a major trend and not a parlor trick," Shaver quipped.

A spokesperson for Opera was not available by press time, but a FAQ published for the press addresses its support for W3C technical standards. According to Opera, the advent of the wireless Internet has forced Webmasters to comply with W3C standards rather than write to a specific browser. ■

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# Fedora Update Tips Topper

## Red Hat's simpler distribution arrives on schedule

BY ALEX HANDY

Red Hat has festooned its Fedora with numerous updates and glittering graphical gewgaws.

Fedora 8, the company's community-developed Linux distribution, arrived in early December as planned and was bumped to version 8.0.1 before the end of the year. The biggest changes to the distribution in this trip to the haberdasher are numerous targeted installations, dubbed "Spins" by the Red Hat team behind its development. Also included are desktop graphic enhancements and wireless management features that make this free Linux distribution behave more like its competition from Apple, Microsoft and Ubuntu.

Fedora 8's new Spins are, for now, simply slimmed-down installation packages. The Fedora community is planning to open up many other types of targeted distribution installations as the project progresses. But for now, Spins are mostly built for quick network installation, or for live operation from USB memory sticks. As one might expect, the primary Spin of Fedora 8.0.1 is meant for desktops and workstations. Fedora can also be configured in kiosk mode, thanks to new user account options.

For Java developers, Fedora 8.0.1 includes Red Hat's own IcedTea Java environment. IcedTea is based on Sun Microsystems' OpenJDK, but includes Red Hat-made plugs for the code holes that still exist in the Sun project. Fedora 8.0.1 includes a fully open source Java runtime and development environment.

### DESKTOP APPEAL?

For desktop users, Fedora 8 provides Gnome 2.20, and can also be fitted with KDE 3.5.8. KDE users also have the option to download and install the development version of KDE 4.0 from Red Hat's repositories after they've installed Fedora.

Desktop users will likely notice some graphical additions to their windows and scroll bars, as Fedora 8.0.1

includes Compiz Fusion. Compiz Fusion is installed by default, but must be enabled by the user in the system pref-

erences. Once enabled, Compiz Fusion brings window morphing and desktop rotation into the user experience,

and has been compared to Mac OS X's Spaces feature.

For developers looking to build applications that will run

inside Fedora, this new version offers a significantly changed Linux kernel. Based on kernel version 2.6.23, Fedora 8.0.1 includes the recently merged Completely Fair Scheduler. This brand-new scheduler handles all of the CPU resource allocation with a timeline for tasks. ■

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# JSR 317 Persistently Improving

## JPA 2.0 will offer better mapping and modeling of object relations

BY ALEX HANDY

In the days when even the largest systems had what would now be considered extremely limited resources, data handling was fairly straightforward. There once was RAM and hard storage, and, outside of virtual memory, the two never mixed. Data in RAM was there until the program ended, while data on the hard drive was considered the authoritative version.

But as resource constraints faded, all of this changed: RAM could be stored for later use, and in-memory data didn't always have to vanish when the program finished running. Today, data persistence is an issue for developers at many levels.

Persistence has blurred the lines between data at runtime and data for storage, and that's why the Java Community Process has been working to improve the practice through JSR 317, the specification for the Java Persistence API (JPA)

version 2.0.

Linda DeMichiel, senior staff engineer at Sun and specification lead on JSR 317, said that the new version of JPA would be based on lessons learned in other persistence systems. Specifically, she's hoping to bring criteria-based dynamic query generation into the API.

"Hibernate has a criteria

API that is regarded quite well in the Hibernate community. TopLink has a similar API from which we can also learn. Of course, query by example has been around for decades," said DeMichiel.

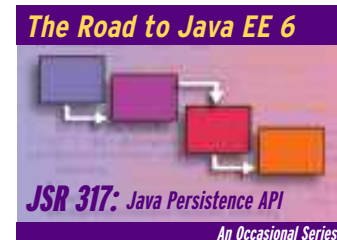
"We want to look at adding an API for so-called criteria queries. Think of them as a different way to formulate dynamic queries that is more object-

oriented than those used in string-based queries. Think of criteria as being formulated more in terms of a query tree: The nodes of the tree are centered around the object category. You build up a category tree at runtime. That gives a bit more user-friendly manner for constructing dynamic queries," said DeMichiel.

While the JPA 2.0 specification won't be complete until the end of 2008, DeMichiel noted that she and the expert committee on the JSR 317 team have already done a great deal of work around "topics related to expanding the object relational mapping functionality and the modeling of Java persistence," as she put it.

This is work that needs to be done before the rest of the specification takes shape, she said, because the JPA query language will be adapted to include new modifications around these capabilities.

Also on the docket for JPA



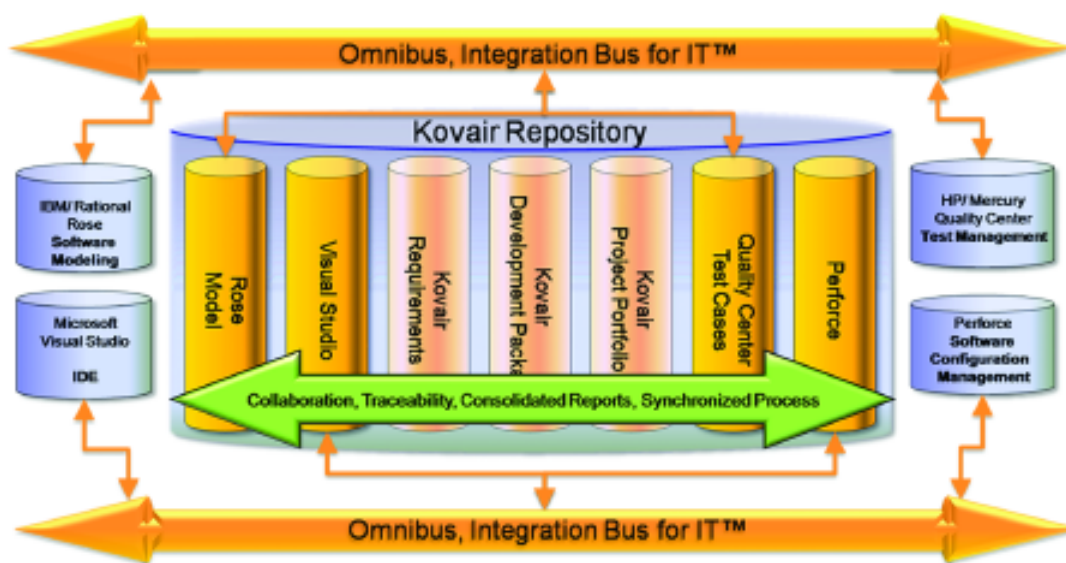
2.0 are numerous new features added to meet real-world requirements. DeMichiel said that these have been numerous, and she takes these as a good sign for the health of JPA in the wild. "We've had a lot of requests for collections of basic types, collections of embeddables," she explained, adding that foreign key mapping for one-to-many relationships was also added at user request. "Support for ordered lists, where the ordering is made persistent in the database" will additionally be present. "All of those you'll see coming out in the first draft of the spec we release," said DeMichiel.

But, it's still too early to estimate when that first draft will arrive, she said, even though the final version of JPA 2.0 should arrive at the same time the rest of Java EE 6 takes shape, sometime at the end of 2008. ■



Persistence systems guided Linda DeMichiel, JSR 317 specification lead.

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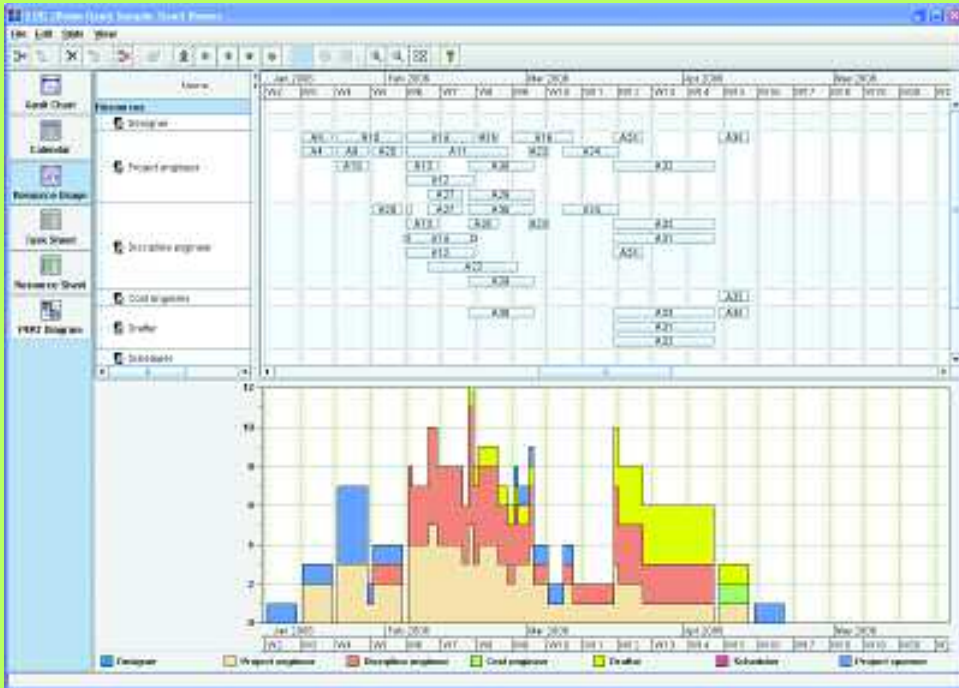
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## ILOG JViews 8.1 Boosts Performance



ILOG has souped up its JViews visualization components with more optimized JavaScript code and CSS improvements for the control and rendering of graphical objects. JViews 8.1 speeds up selection of objects across the suite, the Diagrammer integrates with the Maps component, and JViews Gantt is more deeply integrated with Eclipse to work directly with SWT graphics. ■

## Ounce Labs Teams Up With Apache Maven

### New version of analysis engine integrates with build platform

BY JEFF FEINMAN

Ounce Labs earlier this month released the latest version of its flagship security analysis engine, with new build automation capabilities that include support for the Apache Software Foundation's Maven build platform.

Ounce 5.0.4 comes with two new components: the Ounce-Maven plug-in and the Ounce Automation Server.

The Ounce-Maven plug-in allows Ounce to integrate with the Maven build environment by allowing the generation of Ounce projects and applications that are based on Maven project files. Ounce scans can also be carried out on Maven projects with the option to publish and save results, and a report can be displayed with the results of the scan. The plug-in operates independently

of other Ounce components when creating application and project files, but it uses the Ounce Automation Server for scanning and reporting.

The Ounce Automation Server allows the managed running of scans and publishing the results in addition to generating reports. It can be configured to act as an Ounce user and, when in use, have the same permissions of that user. It comes with a free-standing CLI, the Ounce Automation Server Command Line client. According to Ounce officials, clients of the Ounce Automation Server are tied to a particular host, reducing the likelihood of confusion.

The source code for the Ounce-Maven plug-in will be hosted at the Codehaus open source project repository, at [mojo.codehaus.org](http://mojo.codehaus.org). ■



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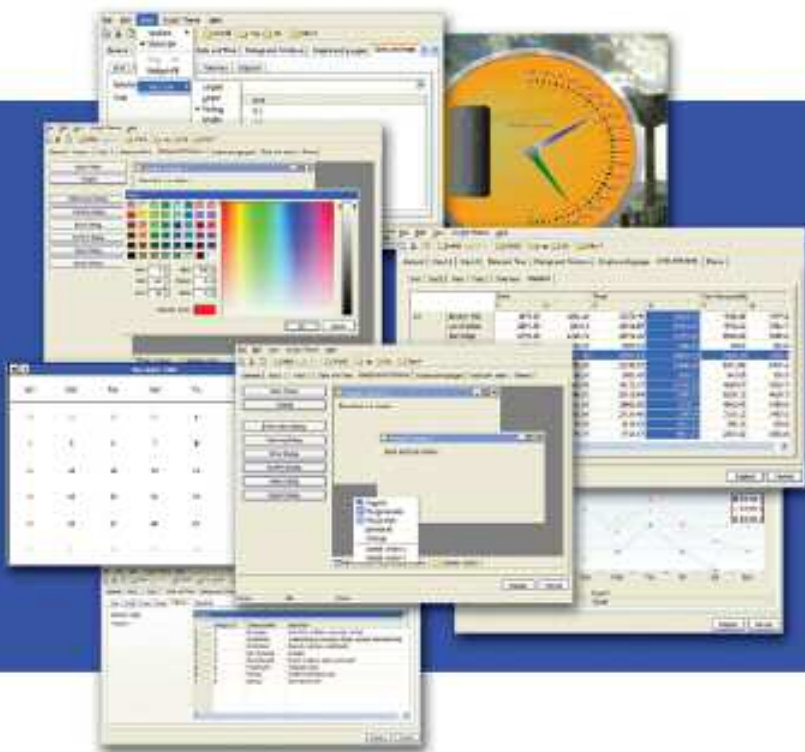
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# Coghead Moves to Adobe Flex, Hosting by Amazon

◀ continued from page 1

servers and storage.

Although the company decided to rewrite the entire application from scratch in Adobe's Flex, the underlying functionality of Coghead's rich client has not changed in version 2.0. Previous versions had been based on OpenLaszlo, but Greg Olsen, CTO and founder of Coghead, said the Flex version is significantly more responsive and usable. This makes a big difference for end users, who use and access Coghead applications through the same client used for development, he noted. Developers simply use a higher level of access, and thus have the ability to move and change the elements displayed to end users.

The Coghead client is a visual development environment targeted at front-line users who need to construct simple applications that replace existing tools embedded in databases or spreadsheets. With Coghead's back-end system now running on Amazon's S3 storage system and running on top of the Amazon Elastic Compute Cloud (EC2), this SaaS solution to desktop problems is now

more reliable and can accommodate larger applications, claimed Olsen.

He added that Coghead has been used to build all manner of data-driven applications. "I'd say the applications are functionally all over the place, from custom lead management to organizational management things. There's a lot of small business applications or departmental applications in larger companies. People use our product to solve problems they might have used spreadsheets or FileMaker to solve in the past," said Olsen.

Coghead 2.0 runs on any system that supports Adobe Flex applications.

The software costs US\$50 for a five-user license, and additional licenses can be purchased for \$10 per user.

For the future, Olsen said that he'd like to improve Coghead's integration. Currently, Coghead applications can be integrated with outside applications, but Olsen said he hoped to expand the range of possible integrations and work with ISVs to bring in targeted integrations. Additionally, Olsen said future versions should allow users to run applications offline. ■

*'People use our product to solve problems they might have used spreadsheets or FileMaker to solve in the past.'*

—Greg Olsen, CTO and founder of Coghead

## Catching a Web 2.0 Wave

### Visual Assembly Studio now available

BY JEFF FEINMAN

Web 2.0 application tool creator WaveMaker Software, formerly ActiveGrid, announced the general availability of the WaveMaker Visual Assembly Studio and the WaveMaker Rapid Deployment Framework for enterprise Web 2.0 applications.

The Visual Assembly Studio, announced in mid-December, uses drag-and-drop assembly of AJAX widgets, databases and Web services. It is available for free via download. The tool provides developers with a visual environment to create Web applications without complex code or portal frameworks, company officials said. WaveMaker claims that the studio has accelerated the development of applications by as much as 67 percent and cut lines of code written by 98 percent. This dramatically smaller codebase, officials claimed, means that visually assembled applications are cheaper to maintain and easier to manage.

Web applications built with the WaveMaker Visual Assembly Studio can then be deployed with the WaveMaker Rapid Deployment Framework onto Java application servers, including Apache Tomcat and Java EE servers from BEA Systems, IBM, Red Hat and Sun Microsystems. The Rapid Deployment Framework is commercially licensed. Full installations of the WaveMaker Rapid Deployment Framework start at around US\$25,000.

"We are pleased with the positive feedback we received from those who have participated in our beta program," said Christopher Keene, CEO of WaveMaker, in a prepared statement. "The Visual Assembly Studio and Rapid Deployment Framework provide developers with a solution to quickly develop and deploy applications on any Java platform with significantly less code—dramatically improving business productivity while still complying with core IT standards for security, data and governance." ■

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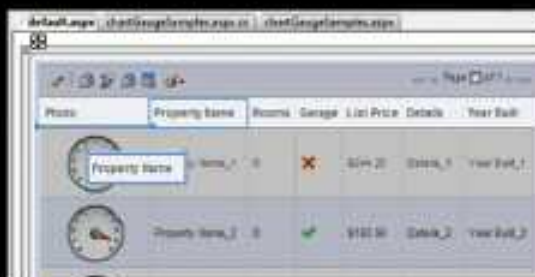
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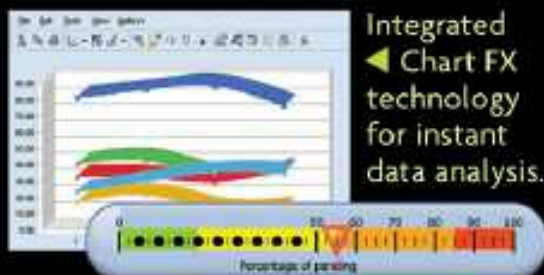


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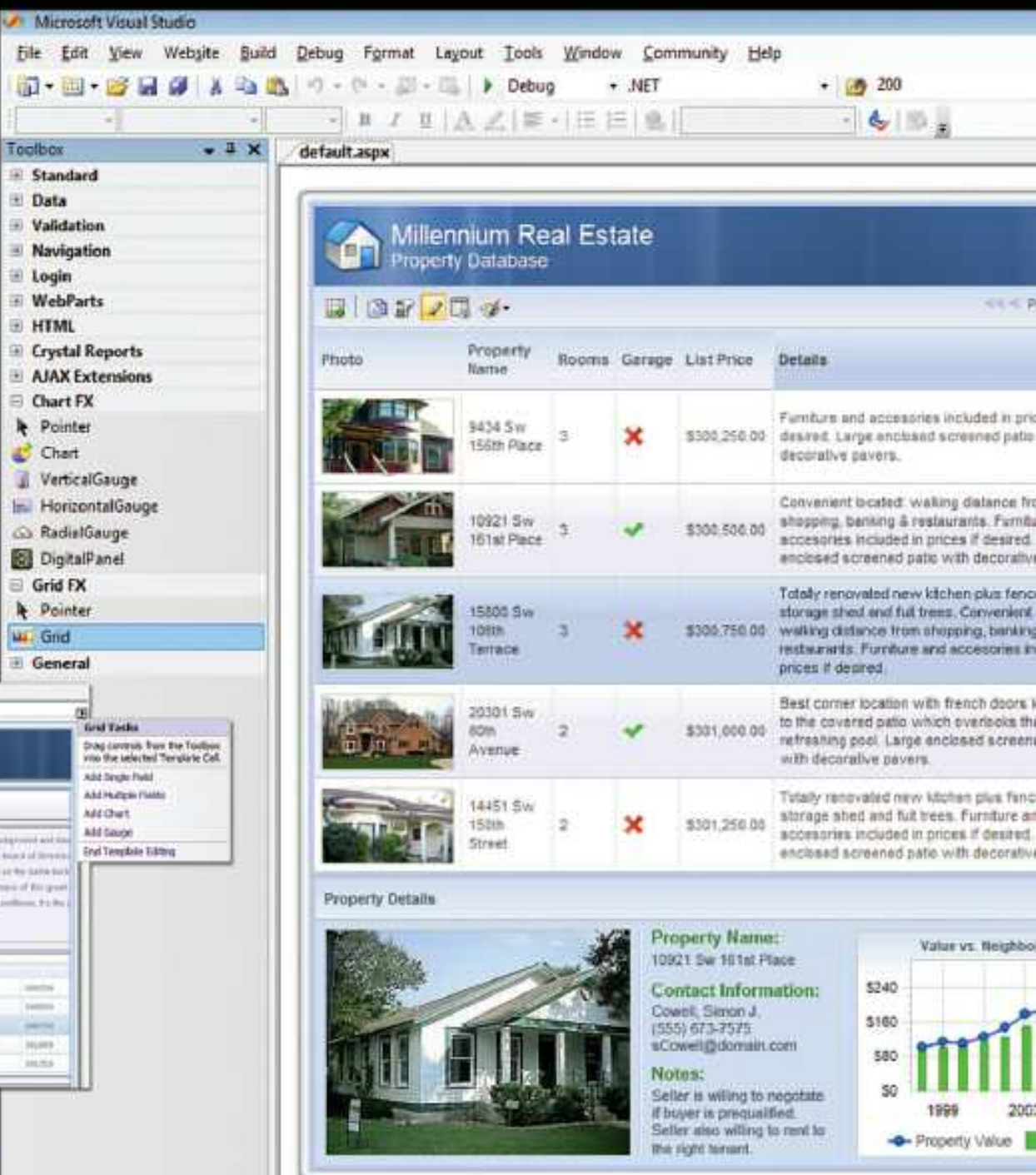


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# Software AG Continues SOA Buying Spree

BY DAVID WORTHINGTON

While millions were walking the malls and Main Streets, Software AG did some holiday shopping of its own in December, snatching up Jacada's application modernization business.

The acquisition was the latest in a string of buyouts that have broadened the company's presence in the SOA market.

The company on Dec. 20 announced the acquisition, a US\$26 million cash transaction

that expands Software AG's legacy modernization portfolio with products for modernizing the user interface of mainframe and midrange-based applications. It also gains more than 200 enterprise customers, located

mostly in the United States.

The deal was effective as of Jan. 1. Karl-Heinz Streibich, CEO of Software AG, said in a prepared statement that Jacada customers would benefit from expanded research and devel-

opment. Eight of Jacada's R&D and support staff will join Software AG, providing some continuity in product evolution.

Some of the more noteworthy Jacada products are Hostfuse, an integration solution to modernize green-screen applications and allow them to participate within the context of a service-oriented architecture. Jacada Interface Server generates thin-client graphical interfaces for legacy applications in either Java or XHTML. It is interoperable with both the .NET Framework and Java application servers, according to the company.

Software AG is also acquiring the intellectual property behind for Jacada Innovator, Jacada Interface Server, Jacada Terminal Emulator and Jacada Studio. It will continue to use the Jacada product names for the near term.

## A BROADENING REACH

Software AG's absorption of Jacada follows its \$546 acquisition of WebMethods in June, and its purchase of a majority stake in SPL Israel in March, for \$62 million.

"Software AG's WebMethods acquisition was most definitely [meant] to make them a player, primarily in the North American market—and their recent quarter has proven that the move was a good one," said Jason Bloomberg, a managing partner with ZapThink. "The Jacada acquisition, however, was more of a gap-filling move to help them tie their long-term legacy customer base with their increasingly solid SOA story," he noted.

Bloomberg added that the acquisition of SPL Israel was another step in Software AG's strategic plan to solidify its leadership positions in its markets. "SPL is a profitable company, which adds to Software AG's bottom line, simple as that."

Software AG released WebMethods 7.1 in September, the first convergence product bearing the WebMethods brand since the merger.

WebMethods' mainframe integration technology was combined with Software AG's EntireX transaction-oriented integration tools. Users of WebMethods mainframe software may migrate to the EntireX platform, and Software AG is continuing to support WebMethods' DataDirect Neon Shadow customers. ■

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# Trademarks Can Throw Up Roadblocks

Icons can present legal headaches for careless developers and designers

BY ALEX HANDY

In an era of code copyright confusion, traditional legal hotspots may be overlooked in the development process. While development managers are getting a handle on just what source code can be legally copied into an application, icons and their relevant trademarks could present an even deeper legal hole for some developers. Buttons, images and icons aren't typically at the top of the priority list for developers—being thought of as mere “eye-candy” by some coders—but astute legal wranglers already know that trademark law can be treacherous.

Tiki Dare, Sun Microsystems' director of trademarks, said that most software houses have a plain case from where to draw their lessons on trademarks. The Mozilla Firefox Web browser has been included in the Debian Linux distribution as part of its standard desktop installation for years, she explained. Debian has a reputation for being the most widespread “free” Linux distribution, she continued, and in the past the project has had lengthy internal discussions over software licenses and the relative freedom of various software packages.

In 2004, the distribution's caretakers began to fret over the trademarking by the Mozilla Foundation of the Firefox name and logo. In order to forestall possible legal restrictions, the Debian team changed the name and icon of its Firefox binary to IceWeasel in early 2005.

## SIGNPOSTS FOR THE USER

In the end, said Dare, trademarks are all about communicating with the end user. When users install Firefox, they can be confident that it will be the same software they're used to, no matter the platform, she added.

While the IceWeasel dispute is an isolated case, it does offer some insight as to how a development team can best cope with trademark issues as they crop up during a development process.

“Engineer your applications in such a way so that

changing icons and splash screens is easy,” said Dare. “Striking the right balance is hard, and is it the right bal-

ance for whom? The reason this is so important is interoperability. You can make a fair argument that it's the Holy

Grail. Trademarks communicate [interoperability] in one step. You can use a trademark and a trademark license to

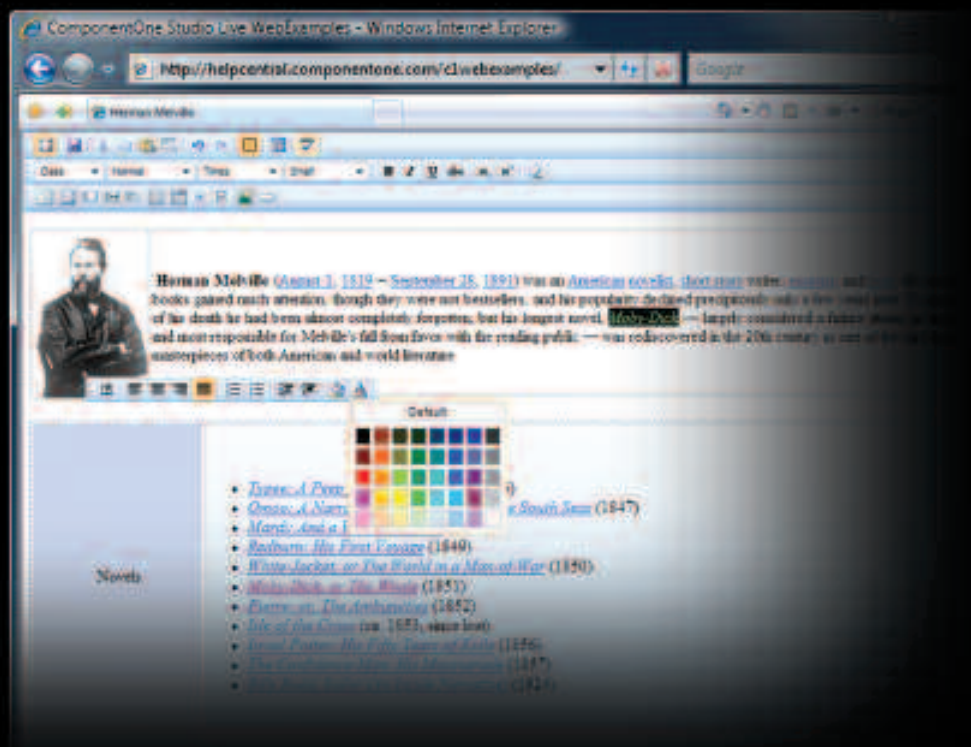
keep that interoperability to a community, and in the same step you can communicate that to the end user.” ■

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## XBRL Revolution Has Begun For Financial Reporting

◀ continued from page 1

as a standard for bank reporting.

David Blaskowsky, director the SEC's Office of Interactive Disclosure, explained that the comment period is intended for real-world users to ensure that the taxonomy is complete and to identify any remaining issues and gaps that need to be addressed.

A government-imposed mandate may follow suit. Blaskowsky said that the SEC was engaged in a "serious rule-making process" and could create a rule as the end of the first quarter. The SEC will hold roundtable events for stakeholders across the U.S. in the coming months.

He noted that the SEC is working closely with other financial regulatory bodies across the world. "There will be substantial benefits if the movement of information across borders can be facilitated," he added. "The biggest win is the comparability and transferability of information."

XBRL has received wide acceptance internationally for financial reporting: China and Japan mandate its use, and the United Kingdom is expected to make XBRL reporting obligatory by 2010.

Blaskowsky said that companies should start looking at XBRL today. "Given software cycles, [developers] have got to [pilot XBRL] today to have the tools that are required when the data becomes available. Deploy some resource, take a run at it, and work in conjunction with financial management," he said.

### REAL-WORLD BENEFITS

The SEC's Blaskowsky said that there were three main value propositions: Internal and external financial information is available in real time, information does

not have to be re-entered, and there is an absence of human errors introduced by intermediaries and any error is preserved.

"It's not about the language; XBRL is an enabler," he said, explaining that an XBRL-driven financial system enables new functionality and benefits. Some of the examples Blaskowsky mentioned are RSS feeds and alerts with settings for reports that have revenues or ratios that fall within specified parameters.

Mike Willis, a partner with PricewaterhouseCoopers and founding chairman of XBRL International, feels that the value proposition is to leverage standards like XBRL to streamline business processes within the enterprise, engage financial counterparts in reviews of taxonomy, and lower subsequent reporting time and costs.

PricewaterhouseCoopers has built XBRL into its analytical tools: Spreadsheets self-populate and accountants create reusable and sharable analytical formulas instead of keying in macros. "[XBRL] can be used to apply analytical concepts to the entire internal information supply chain," Willis said. "It's like an MP3 file for analytical concepts."

Likewise, economics of financial reporting could be affected. Willis noted that XBRL pushes validation and analysis away from the consumer and back onto the preparer, streamlining the reporting process. "Today [financial analysis and validation] is a cyclical process that takes days or weeks."

XBRL also simplifies business rules management systems. "XBRL abstracts rules from the software layer and articulates it in taxonomies; it is more streamlined and is managed and controlled at the IP layer," he said. ■

## MICROSOFT HYPES VIRTUALIZATION

BY JEFF FEINMAN

Microsoft has released a public beta of Hyper-V, the hypervisor-based virtualization feature in Windows Server 2008.

Some new features that weren't previously available in the September Community Technology Preview include a quick migration feature, as well as the ability to use Hyper-V as a Server Core role, and to enable it with the Server Manager tool.

The beta version of Hyper-V, released in mid-December at [www.microsoft.com/ws8eval](http://www.microsoft.com/ws8eval), can be used to test applications, and plan future consolidation, business continuity and high-availability projects, according to Microsoft officials. As a feature of Windows Server 2008, Hyper-V is designed to provide customers with familiar virtualization infrastructure software that can help reduce operating costs, increase hardware utilization, optimize infra-

structure and improve server availability.

The beta is currently available for the x64 Enterprise Edition; a CTP is available for evaluation on other supported systems. The final version of Hyper-V is slated for release within three months of the shipment of Windows Server 2008, due for release by the end of February.

"Delivering the high-quality Hyper-V beta earlier than expected allows our customers and partners to begin evaluating this feature of Windows Server 2008 and provide us with valuable feedback as we march toward final release," said Bill Laing, general manager of the Windows Server Division at Microsoft, in a statement.

In late October, Microsoft announced that Hyper-V, then without a name, would be available under its Open Specification Promise, making it possible for third-party hypervisors and operating systems to interoperate seamlessly with its platform. ■

# Farewell, Netscape, but I Suppose It's Time

BY P.J. CONNOLLY

The holidays aren't really the holidays without a ghost of years past, and in 2007, the ghost was called Netscape.

When I heard that AOL had pulled the plug on the Netscape Web browser, I was less surprised by the news than by the revelation that the company was still maintaining it.

At the risk of betraying my age, let's just say that I've been around the track a few times, and I remember when the rumors surfaced in 1993 of a graphical Web browser that was being worked on at the University of Illinois' main campus. As a Northwestern grad, I wasn't sure that the farm boys could make it work, but I was happy to be proven wrong.

In those days, I was the IT manager of a daily legal newspaper in San Francisco, and a year or so before, my proposal for a dedicated connection to this thing called the "Internet" that would aid our writers and editors in research—and to be honest, I was looking forward to using it myself—had been unceremoniously shot down as a waste of money. But when the whispers of a browser called "Mosaic" became a buzz, all of a sudden I was on the hot seat.

## OF SIMPLER TIMES

Perhaps one of the things that saved some of us in those days was that HTML was just another markup language. I'd been monkeying with 1980s-vintage typesetters and publishing software for several years at that point, so a lot of the early process of putting copy up on the Web was a simple matter of changing the macros that set up the formatting strings. After all, XML is just SGML with better marketing, isn't it?

Honestly, in 1994 it was more exciting to have a connection nailed up than it was to make something render attractively on a Web page. But the standards were lower then, and the bandwidth sucker that became Flash was still a dream.

Time passed and Microsoft got its act together—on the fourth try. Like most of the computing community, I became tired of the bugs in

Netscape Navigator, and eventually realized that Internet Explorer worked "well enough" (at least, it did for Windows).

Even though much of the

## ANALYSIS

Netscape Navigator legacy lives on in Mozilla Firefox, it's not the same thing. Like the child who surpasses the parent's achievements, Firefox is the

browser that Netscape should have built.

So the story ends a couple of weeks from now, when AOL officially ends support, and since it's been a decade since

Netscape was relevant, I guess it was overdue. But that doesn't make it any easier to say goodbye to an old friend, no matter how long it's been since you had any fun together. ■

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# New Roles, Rules Take Getting Used To Agile At Scale

◀ continued from page 1

database experts [and so forth], and agile hasn't changed that," he said. "They stick with what they know."

Goodman hasn't had that luxury. The Scrum practice of self-managing teams has changed his role drastically. "I can no longer say: 'Do this, and do that.'" When problems cropped up in the past, Goodman solved them by delegating tasks to team members. Now he retreats to his office and lets the team come up with its own solution. He is committed to the new way of working, even though he admitted it feels "a little scary, almost like you're losing control."

For developers on agile teams, nothing feels more unfamiliar than pair programming, the Extreme Programming (XP) practice whereby two developers write code together at a single workstation. "Every minute your ideas are challenged, and you have to explain them to someone else," said Oxygen Media software developer Wendy Friedlander.

The cable network adopted its own variant of XP, which includes some Scrum practices, in January 2004. Even though Friedlander said pair programming "feels strange all the time," she likes it. The Oxygen team of eight changes partners once a day, and that results in better software, where each feature is carefully thought through. "When you are working alone, it's hard to tell if something you have done—such as the placement of a control—will confuse the intended user," she said.

"But with pair programming, the whole team is thinking about [this issue]," added Oxygen software developer Oksana Udovitska. "You let go of ownership of your code and come up the best



**Direct Tech's Goodman says he is committed to Scrum even though it feels 'like you're losing control.'**

solution. When you're working alone, you can never be confident of that."

Friedlander noted that a common objection to pair programming is that the technique is inefficient, that a developer working alone can write code faster than two working side by side. But the benefits are counterintuitive, she said. "You gain things you would never gain otherwise." For instance, there is no need for the team to stop work and discuss an application's design. "When you are switching pairs [once a day], you know."

Pair programming with pair switching gives management a better handle on what's happening, too, said Oxygen vice president of software development Ken Judy. "At some level, you have to try to understand what each individual is accomplishing. In pairing, discussions over what each developer is doing are inherent."

## GEARED TO AVOID CONFLICT

Pair programming has a love-it-or-hate-it reputation. But even agile practices that don't inspire that reaction force developers to abandon customary ways of working.

Direct Tech's Goodman offered an example. Scrum mandates that developers focus on one task at a time. That is harder than it sounds, he said. "Let's say the task is 'add a new customer.' The developer does that. Then he thinks to himself: I might as well do the update customer function and the delete customer function at the same time." This feels more efficient. But in agile, where tasks are defined in a much more granular manner, it's not, Goodman said. "In the long run, we get a [bet-

ter] add function, a [better] delete function, and a [better] update function."

One change that impacts every agile stakeholder is learning how to accept criticism and act on it constructively, said Agile Infusion consultancy owner Bob Schatz. Agile is all about feedback, and soliciting it early and often is crucial to keeping projects on track, he said. "If the users [you are developing for] don't like what you're doing, you will know within three weeks," he said. But for most people, negative feedback is hard to give and hard to hear. "It makes people uncomfortable," said Schatz.

Showing the customer what the team has come up with is indeed nerve-racking, said Oxygen software development manager Luke Melia. "You hope that nothing blows up." The Oxygen team meets with the business stakeholders every two weeks, and over time mutual respect has developed, he said. "There were meetings where the business thought we had worked magic." One didn't go so well. "We didn't get it right at all," recalled Melia. "We had underestimated the difficulty of the task. I felt terrible."

## STEP UP TO THE PLATE

Agile puts the business stakeholders in the hot seat, too. "They have to accept that the developers aren't just order-takers," said Greg Reiser, vice president for consultancy Thoughtworks. When new requirements come in, a dialogue ensues, trade-offs are discussed, and a decision on how to proceed is jointly reached, he said.

Brian Carter, a vice president for consultancy Sapient, agreed. "Business stakeholders have been asking for more involvement in application development, and agile gives them that." But it also demands more time, dedication and focus than has traditionally been asked of them. Getting business stakeholders to commit may mean getting the boss involved. "You have to take that person out of the business and dedicate his time to [the agile effort]," said Carter. "It's hard to succeed if the business stakeholder has a day job."

Getting everyone to show up is only half the battle. Also key is making sure the business stakeholder's interests aren't mis-

aligned with those of the developers. Outdated reward systems are not always apparent, and they can undermine or even derail agile projects, said Sapient senior manager Erik Gottesman. He offered an example. "A development project has two stakeholders: one from the business, the other from IT. The business guy's success is measured by how many features he can cram in. The IT stakeholder is rewarded according to how many delivery dates he makes." That's disastrous for agile projects, he said. "The business pushes for new features that aren't needed, and IT focuses on meeting deadlines, instead of delivering [exactly what the business needs]." That is the worst way to organize intellectual work, said IBM's Ambler. "We need to change our ways."

What's the right way to reward project stakeholders?



**Agile is all about feedback, and negative feedback is hard to hear, says Agile Infusion's Schatz.**

"There are no perfect solutions," said Gottesman. "You need to quantify the business results you seek to realize from features, in financial terms." Also important is deciding how to evaluate the performance of each member of the agile team.

"You don't want to judge them solely on their individual merits," said Agile Infusion's Schatz. He recommended a three-part plan: one-third is the team's overall performance, one-third is how well the individual works with the team, and one-third is the individual's skills in core areas of expertise, such as QA or coding.

Agile's success depends heavily on how well team members interact with one another, and on the team's ability to resolve conflict, said Schatz. "If all you know is Scrum, you're in trouble." ■

## Agile At Scale

BY DAVID WORTHINGTON

Many enterprises are now developing their software globally. At SD Best Practices, held in Boston in mid-September, IBM Rational's Scott Ambler discussed with us the challenges of geographically distributed development and possible solutions.

He contends that there is no single cure-all approach; agile is relative, and a quality management approach that can be applied successfully in one situation may fall short in others.

From a quality management perspective, it is essential that remote quality teams have a firm understanding of changes and provide continuous feedback to developers. This, Ambler said, reduces the risk of miscommunication, incomplete communication, or even the absence of communication of the change to widely dispersed quality teams.

He recommends that teams follow the agile approach to provide "just enough" change and test management. Agile quality management teams should be fully integrated into a continuous and collaborative feedback loop with business analysts, customers and developers.

He also hosted a breakout session about agile's relationship to model-driven development, with the advice that modeling and documentation should be a part of all agile projects. According to Ambler, agile documentation is the least efficient form of communication, so executable specifications are preferable over static documentation.

Documentation should also be simple and concise single source information, and teams should document "stable things, not speculative things," he said. ■



**All agile projects need modeling and documentation, says IBM's Ambler.**



**Agile demands more from business stakeholders, says Sapient's Carter.**

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# Wind River At Heart of LiMo CIE

## Build tools chosen for integration initiative

BY P.J. CONNOLLY

If anyone wondered whether the LiMo Foundation's goal of reducing fragmentation in the Linux mobile handset market was all talk, the question may have received its first answer.

The foundation's Common Integration Environment took a big step forward in December, with the announcement that it had selected technology from Wind River Systems as the core for the project. The Alameda, Calif.-based company's build and configuration system will provide the "fundamental building blocks" for CIE, noted the company.

The company's tools won the race because the "environment is specifically designed to solve the fundamental problem of managing and integrating a rapidly evolving mobile phone stack and ecosystem," noted LiMo Foundation executive

director Morgan Gillis in a prepared statement from Wind River.

The former Symbian sales honcho, who joined the foundation in September, added that as all future member contributions to CIE would use Wind River's layered build system, the goal of a unified mobile Linux ecosystem had come closer to fruition.

The CIE is intended to allow LiMo to easily manage components developed by members, and allow the easy exchange and update of components that will allow OEMs and operators to differentiate their handsets while remaining within the LiMo specification. It is also expected to reduce the time-to-market and improve the quality of mobile applications by reducing the time required for test and QA processes. ■

# Mobile WiMAX Lights Up First Testing Lab

BY P.J. CONNOLLY

Mobile WiMAX took a step closer to being reality with the announcement that formal certification testing of devices had begun, with an estimated 300 operators in more than 65 countries currently engaged in Mobile WiMAX pilots and trials, says the WiMAX Forum.

The lead certification lab, at AT4 Wireless in Spain, began accepting products using the 2.3 GHz and 2.5 GHz bands last month, according to the WiMAX Forum, which expects certified Mobile WiMAX products to reach the market later this year. Other certification labs in the United States, China, India, Korea and Taiwan are expected to come online this year to share the burden of validating product confor-

mance and interoperability.

"The beginning of Mobile WiMAX certification enables our member companies to deliver on their business commitments, and ultimately moves WiMAX service providers closer to bringing the mobile broadband Internet experience and new applications to consumers around the globe," said WiMAX Forum president Ron Resnick, in a prepared statement.

Mobile WiMAX follows the IEEE 802.16e broadband wireless standard, with Orthogonal Frequency Division Multiple Access multiplexing. The WiMAX Forum's certification programs are designed to indicate interoperability among fixed as well as mobile broadband wireless products. ■



Photo courtesy of TSX

Hostopia CEO Colin Campbell, center, believes that wireless synchronization of PIM data is becoming the norm.

# Nexthaus Ships Beta Of iPhone Sync Client

## Wireless PIM sync enabled, claims company

BY P.J. CONNOLLY

Although an approved iPhone SDK isn't due from Apple for a few months, one company has already seized the initiative.

Hostopia's Nexthaus unit, which specializes in mobile applications, announced on Dec. 26 the release of a beta version of its SyncJe client software for the iPhone, joining Nexthaus' clients for BlackBerry, IBM Lotus Notes and Microsoft Outlook and Outlook Express.

The SyncJe clients work with any SyncML server and

allow synchronization of PIM data over wireless connections, and the use of automatic synchronization schedules, claims the company.

As Hostopia CEO Colin Campbell noted in a prepared statement, "[W]ireless synchronization of PIM data across multiple devices and platforms is becoming a standard user expectation, not only for iPhone, but for all mobility devices."

For now, the company admits that users are proceed-

ing at their own risk when installing SyncJe on iPhone, but that would be expected to change once Apple begins blessing third-party applications later this. A year of support is included in the US\$39.99 price of SyncJe for iPhone.

Nexthaus' parent Hostopia is a provider of wholesale Web services, which are then resold by the company's customers to small- and medium-size businesses. The Nexthaus unit specializes in data and device synchronization. ■

# AMCC, VIRTUTECH EXTEND SIMICS MODELING PACT

BY P.J. CONNOLLY

As the pressure to reduce time-to-market for networked devices continues, many systems designers are requiring improved performance from their models.

In attempting to address these needs, Applied Micro Circuits (AMCC) and Virtutech announced last month that they had agreed to expand their partnership and to provide simulation tools for

AMCC's forthcoming Power Architecture-based processors that are based on Virtutech's Simics simulation tools.

"We are seeing a strong trend within our customer base towards a greater use of fast system simulation, driven by the increased complexity of their products and the need to isolate complete system-level data flows early in the design cycle," noted AMCC vice president of marketing Sam

Fuller in a prepared statement. "Our customers also need to perform early analysis of their system performance, based on real network traffic, which can be achieved through the use of Virtutech's Simics," he added.

Virtutech already provides models based on its Simics technology for the AMCC PowerPC 405 and 440 families. Under the new arrangement, AMCC will work with Virtutech to provide Simics models as early as possible in the development cycle, perhaps making them available even before the general release of new designs. ■



# OVERCOMING SOA INSECURITY

Experts say defend on many fronts,  
audit continually, hold partners accountable

BY JENNIFER DEJONG

**T**alk about insecurity. SOA applications, more often than not, run over a wire that millions of people access every day.

They are likely to include services that originate outside company walls and, as a result, can't be completely reined in.

To make matters worse, SOA apps are moving targets, made up of services that couple and decouple as needed, said Andrew Brown, director of product management for SOA governance tool maker AmberPoint. "How services are wired together today is not how they will be wired together tomorrow." That adds up to one thing, he said: "When you deploy SOA, you are deploying a new form of insecurity."

SOA makes the security challenge radically more complex, added Roger Thornton, co-founder and chief technology officer for application security tool maker Fortify. "When services connect, you have to ask: Are you really who you say you are? Is anyone eavesdropping? Intercepting the message? Changing it?"

Security outfits and other experts interviewed by SD Times said IT organizations should attack the SOA security problem on many fronts. They need to specify which components can talk to each other, at what times, and which rules (such as data encryption) govern that conversation. They also need to hold partners accountable for strong security measures and ensure the integrity of the code itself, subjecting it to simulated attacks and some source code analysis. Finally, architects and developers should design the SOA infrastructure and the services themselves with security in mind, keeping crucial data—such as credit card numbers—far from the vulnerable front line.

Here's a list of best practices for accomplishing those goals:

**Deal with identity management.** Determine who is looking at what and what permissions have been applied, said Danny Allan, director of security research for security tool maker Watchfire, which IBM acquired in 2007.

"That is front-of-mind for SOA security." The key is managing the identities of the services as well as those of individuals. IT organizations are accustomed to authenticating and authorizing end users, but they are not as adept at applying those policies to machine-to-machine communication, said Adam Michelson, technical architect for Boston-based consultancy Optaros. "When you look at [a company's] LDAP directory, there is a long list of end users, and only one [listing] for business-to-business communication," he said, referring to Lightweight Directory Access Protocol, for querying and modifying directory services such as those used for authentication.

SOA allows IT organizations to externalize identity management outside of the application, said ZapThink analyst Ron Schmelzer. That eases the problem, but it's not a one-size-fits-all solution, he noted. "You have to specify details for each user or service," he said, offering an example of an online merchant. "You can see this [inventory] data, but you can't get at the credit card authorization service."

That is sometimes trickier than it sounds, added Dan Foody, a vice president for Progress Actional, which sells SOA governance tools and other offerings. For instance, a computer repair application needs access to a service that contains customer data to find out what equipment is installed at the customer site. "You want the reps that use the repair app to see the equipment list, but not the customer's credit or billing history," he said.

"But if you're not careful, they can get at every piece of information about that customer."

**Tame the XML beast.** SOA is based on Web services, which use XML to communicate, explained analyst Schmelzer. Because the markup language is text-based, the body of the message must be encrypted, he noted. Also presenting a challenge are XML injections, a variant of a SQL injection, where a hacker inserts a query into the code to call data that is meant to be off limits. "XML has to be parsed to make sure hackers haven't injected malicious requests," he said.

**Look out for denial-of-service attacks.** Keep an eye on unusual traffic, said Michelson. "If you see 10 SOAP [digital] signatures come over the wire in a row, it's probably a denial-of-service attack." There's no need to monitor traffic by hand, he said. "You can audit services for [such attacks] by writing that into a policy." A denial-of-service attack attempts to shut down an application by sending it more traffic than it can handle.

**Write the rules and apply them.** Because SOA is based on a hub-and-spoke model of communication, which relies on a central request broker, it is easy to apply rules pertaining to digital certificates (which prove a person is who he says he is), encryption, digital signatures (evidence a message

has not been tampered with), service levels and a host of other issues, Michelson said, "so do it."

Others agreed. "Someone building a service and making it available to 18 different constituencies must understand how each will use my service," added Thornton. "I have to deliver the right data at the right time, with the right service levels." This process of writing rules and applying them can become extremely complex, added Foody. "But if you keep it too simple, you are losing the benefits of SOA," he said.

**Provide a library of reusable components.** SOA is all about reuse. To promote efficiency, give service creators access to pre-certified components that ease the job of developing services and composing an application, said Watchfire's Allan. This is particularly true for security services common to all SOA apps, he added. "Developers shouldn't [waste time] worrying about things like authorization and access control." Agreeing with Allan was Michael Sutton, security evangelist for application security tool maker SPI Dynamics, which was acquired by Hewlett-Packard in mid-2007. No one builds an application from scratch anymore, he claimed. "If you need a piece of functionality, someone has already produced it."

continued on page 34 ►



Be careful what data is exposed, says Progress Actional's Dan Foody.

## What to Watch Out For

**Authentication & Authorization.** This is more difficult to implement in a service-oriented architecture because you have to authenticate and authorize services, not just individuals.

**Client-Side Attacks.** Input validation or output encoding is a crucial issue to test for, especially when a SOA is consumed or mashed up using AJAX.

**Command Execution.** Data that is accepted from the user needs to be appropriately validated before it is used within the applications. This is especially true when the application communicates with the file system, databases and directories.

**Information Disclosure.** There are a number of issues

that can lead to information disclosure when someone implements a SOA architecture. Probably the most common among them are "hidden" services published in a predictable resource location.

**Third-Party Resources.** The advent of external resources being consumed within a mashed-up SOA service means that the application is dependent on the third-party resource (such as Google Maps). You have to make sure the resource maintains availability and has not been compromised (intentionally or unintentionally). These external resources should be continuously validated for integrity.

Source: IBM Watchfire

# OVERCOMING SOA INSECURITY

◀ continued from page 33

**Design services with a clean separation.** The best architectural approach for SOA is triple-tiered, said Michelson: user interface on top, with services and data tiers below. "Don't allow an outside audience to link to the second or third tiers," he counseled. Sensitive services such as those that access customer credit card numbers belong in the third tier, far from the front line.

**Conduct source code analysis sparingly.** Auditing source code for vulnerabilities a hacker could exploit is never a bad idea. "It's hard to argue against it," said Michelson, but it can eat up a lot of time and deliver only diminishing returns. One approach is to pick one service and look through its source code, he noted. Another, said Mandeep Khera, vice president of marketing for application security tool maker Cenzic, is to consider SOA projects in the context of the company's larger security priorities. "The enterprise has 100 applications," he explained, but only "two are SOA. Look at the big picture. Prioritize the top 10."

**Break your system before someone else does.** Conduct penetration testing on individual services as soon as

they are created, looking for things such as whether user input is validated properly, said Allan. "Then collectively test the entire SOA." Penetration testing pinpoints vulnerabilities by simulating hacker attacks.

**Increase security around transactions.** Don't dump files with key customer data to an FTP server, said Michelson. That advice sounds obvious, but "boatloads of orders" are still handled that way, he said. "There's no security when you are doing it in batch. And [hackers] love finding an FTP server."

**Agree on core standards with business partners.** A travel Web site sells airline tickets. Its partner sites rent cars. But how does a company manage user identities in a way that is meaningful to its partners, asked Schmelzer. "This is known as 'identity propagation,' where all participants know who the end user is." Standards such as WS-Federation and Liberty Alliance help manage this problem, he admitted. "But that doesn't mean everyone has implemented them," so it's imperative for all parties to meet face-to-face and agree on which standard to implement.

**Keep partners accountable for the security of their services.** How

do you know that a partner's service—a component in your company's SOA—is secure? "People tend to test their piece but not their neighbor's piece," said SPI's Sutton. There are a couple of solutions, said Watchfire's Allan: Ask for proof that the component has been tested for security and write it into a contractual agreement, or ask permission to test the component yourself. "It's a warning sign if they say no."

**Keep on testing: SOAs are moving targets.** To ensure security, you have to audit on an ongoing basis, said Allan. "There are a dozen things that could go wrong." Is input validation working correctly? Is the system doing identity management correctly? "It's a

mistake to test for all of the problems at once," he said.

A key thing to check for is how the SOA is using third-party components, and whether those components are functioning properly, said Zap-Think's Schmelzer. "Take down one key service, [and] you can take down [the entire app]," he noted. "Can you imagine what would happen if Google Maps went down? How many applications would I kill?" In the past, that would have been a problem for only Google, he noted, but with SOA, the impact is so much wider. "The greatest benefit of SOA—[the ability to share services]—is also the greatest problem of SOA." ■

## 'ANYONE...COULD CHANGE ANYTHING'

### Access overlooked as call center app is wrapped as a service

BY JENNIFER DEJONG

It was a good idea: Get partners to process their own orders on the Web instead of doing the job for them. But when the small firm that provides shipping services for wineries embarked on its first SOA project, the application was nearly derailed by a serious security oversight.

"A horrific vulnerability showed up in the first hour of testing," said Roger Thornton, co-founder and chief technology officer for application security tool maker Fortify. "Anyone connected to the system could change anything."

The company, which Thornton did not name, did what many companies do: It took an existing call center application and "wrapped" it as a service. By SOA-enabling the application and making it available to its business-to-business customers—the wineries—the company sought to gain efficiencies. With its customers directly tied in, call center reps would no longer have to field orders that came in by fax and phone, typing in the who, what, when and where pertaining to wine shipments, said Thornton. "There were great business reasons to do [the project]."

But in its enthusiasm, the company failed to think through a crucial security issue: Who gets access to what informa-

tion, and what changes are they authorized to make? As a result, it inadvertently authorized all of its customers to access and make changes to all account data on the system. In other words, they could view and update their own accounts, as well as those of all of the other customers.

Thornton said the security night-



**Be careful of the potential loopholes a standard can make, says Fortify's Roger Thornton.**

mare was a carryover from the application's earlier incarnation, which allowed all call center reps to update all customer accounts. That level of access and authorization made sense for an application designed for internal use only, but not for one intended for outsiders, Thornton said. How did the company manage to overlook such a critical issue? "They implemented the application using the WS-Security family of standards," Thornton said. "That gave them a false sense of security."

WS-Security is important because it provides a standard way to implement security issues such as access control, authorization and encryption for Web services. But, of course, the standards don't specify who should get access and update privileges, said Thornton. "So people think: 'If I implement WS-Security, my system is secure.'" ■



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## FROM THE EDITORS

## A Virtual Blunder

One or more employees of Microsoft have demonstrated that the mainstreaming of virtualization will not be without its hiccups, and that at worst, the company's much-hailed security culture has yet to be fully digested.

Virtualization affords Microsoft the ability to deliver a consistent experience to its customers. Customers evaluate software in a preconfigured environment in which the company doubtlessly invested its time. What scares us is that it seems Microsoft doesn't understand how to do this securely, having shipped a virtual hard disk of evaluation software that included previously deleted files.

Voke analyst and founder Theresa Lanowitz was correct to call Microsoft out: It should have known better. Virtual machines are a new paradigm for software distribution, but the company's bread-and-butter is just that: software distribution.

What other company would have the incentive to perfect its QC best practices if not Microsoft, given its dismal history of selling nearly negligently insecure software?

Shipping a VHD of a system is tantamount to sharing that particular system with others. In the physical world, the machine would have been locked down and its free space wiped before the system was imaged. There appears to be no malicious plot this time, merely the familiar picture of an incomplete quality control process at the world's largest software company.

The technology of software virtualization is being exploited in new ways, and Microsoft's QC failure should be a lesson to all: Principles of management and security must also apply to virtualized software distributions. It is doubtful that the company would ship an entire copy of Windows on a CD containing demo software. Its partial inclusion in the Internet Explorer VHD file was sloppy, and inconsistent with its treatment of its shrink-wrapped products.

For the sake of fairness, it should be noted that Microsoft has taken remarkable steps to weave security into its software development life cycle.

It has made a substantial investment in its resources, and management has signed on completely. It is producing more secure software and has greatly improved its patching process, but it forgot to apply those hard-learned lessons to virtualization.

Microsoft, and other vendors that distribute or intend to distribute software using virtual machines, need to establish best practices before disc images are built, and then adhere to those practices.

There's no better way to retard the adoption of a perfectly good technology such as virtualization than to mishandle it the same way as the Microsoftie who built the IE8 demo.

## Blind Leading the Sighted

The old adage "the blind leading the blind" is quite apt for some waterfall processes. But when it comes to accessibility testing, the cliché should read "the blind leading the sighted." There's simply no substitute for end-user testing when building applications and Web sites for use by the disabled.

But one problem remains: How does one simulate a disability in the absence of someone with the specific condition? Every possibility we devised came off as insensitive at best.

Perhaps there's no politically correct solution, which may mean that an ultra-specialized market for QA testers will open up, and if it gives some people an unexpected chance to contribute, that's all the better.

Nevertheless, the handwriting is on the wall: In a world where some lawyers have made careers out of suing businesses for not properly accommodating the disabled, it's only a matter of time before a company is sued because its Web site communicated too much of its information via streaming video or other visual display types. ■

## SHORT TAKES

**CONFESSION TIME:** I'm not a programmer. But despite this, I feel that I'm able to comprehend many of the deeper development topics and issues even if I can't write a decent While/For loop. But this is why I can sympathize with many of the QA engineers that are finding themselves pushed out the door in favor of testers with coding

experience. When you get right down to it, your best possible tester is someone with extensive software experience but little actual experience programming. Why? Because people like me are closer to the end user's level of understanding than programmers are. It's the same reason that people who do special effects for movies can't watch films without cringing and complaining about bad effects: When you've been under the covers, the nicely made bed isn't nearly as appealing. So before you go firing all of your testers that can't read binary, just remember that the ability to properly write up a bug is far more important than the ability to suss out what's programmatically going wrong behind those windows. Besides, a lazy coder given a testing chore will always write up a script to do the deed, while a noncoding tester doesn't have that option.

—Alex Handy

**IT'S ONE THING TO SCOUR** your own apps for security defects before they go live—you can fix anything you find in coding and QA. But what happens when you subject production applications—including commercial software your company paid serious money for—to the same set of tests? This issue is likely to

come up now that tool makers including Cenzic and Fortify have begun selling software that looks for holes that hackers could exploit in production applications, not just those still under development. I asked Cenzic vice president Mandeep Khera how this problem is likely to shake out, and he said two things: IT professionals will put pressure on vendors to fix the security flaws, while also protecting production applications by turning off the features found vulnerable to attack. It will be interesting to watch this unfold.

—Jennifer deJong

**MICROSOFT'S PENCHANT** for shipping unrefined products has expanded and metastasized into its greeting cards, it seems, after a card sent on behalf of Microsoft proved defective. The card was adorned with a wintry scene overlaid with cutouts of abstract trees; one



of the trees had fallen off the card. SD Times could not determine the origin of the tree's dis-

location from the card, but on appearance, it looked as if Microsoft had attempted to patch the card with tape and glue. A Microsoft spokesperson was not available by press time to confirm that the patch had failed, or whether it was a last-minute hotfix.

—David Worthington

## CORRECTION

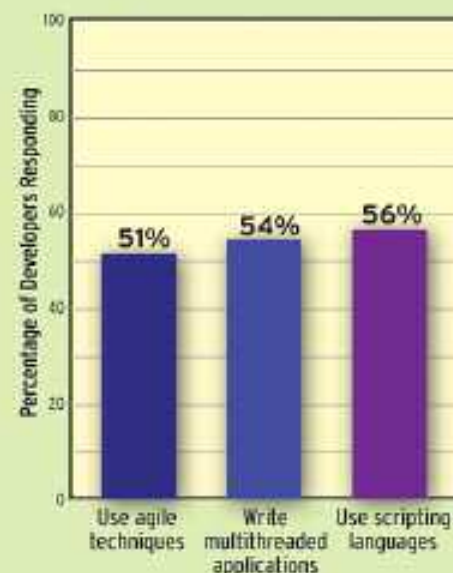
In the Dec. 15 edition of SD Times, the version of iTKO LISA that introduced the LISA Virtual Service Environment was incorrectly stated. That feature was first available in version 4.0.

## New Technologies Gaining

## DATA WATCH

Developers using agile programming techniques, writing multithreaded applications or using scripting languages can now call themselves in the majority, according to a recent report by Evans Data. The North American Development Survey, conducted in November 2007, found that 56 percent of developers have taken up scripting languages to some degree, although less than half of respondents use scripting languages more than 20 percent of the time.

The survey also found that 54 percent of developers write multithreaded applications, which will be valuable experience as more hardware is based on multicore processors. For now, the survey found that a lack of tools and the complexity of parallel programming are the chief challenges in this area.



Source: Evans Data

# The Horizontal Tool Integration Imperative

While vertical tool integration might be good for vendors—stickiness equals revenue, equals lock-in, equals more revenue—consequences for customers aren't all that positive. What are we solving for: vendor profitability or better software, faster and cheaper? Certainly vertical integration means at least some tools might work together, in some form or fashion, but no one has cornered the market on brain cells in today's world, which is why a diverse portfolio of tools and applications will always be necessary.

Baby steps get you nowhere. It's time to start thinking about how to deliver step-function improvements in quality—and this will require horizontal integration, or tools that talk to tools across vendor boundaries—i.e., time to play nice together. Expose those APIs and internal data formats. Add capabilities for data export and import.

I recently looked across our own development environment and was shocked to see what a significant contribution we are making to Intel and AMD's top-line growth, not to mention global warming. We have a somewhat standard continuous integration environment that compiles code every five minutes if changes in our source code management system have been detected, integrates nightly, runs regression tests and a bunch of the other well-known tools.

The hitch is that most of these tools spend most of their time doing the same things: a compiler (parses source, builds an abstract syntax tree [AST]...), PMD for static analysis (parses source, builds an AST...), FindBugs for static analysis (parses byte code, builds an internal structure...), Dependency Finder for interdependency mapping (parses byte code, builds an internal structure...), Ounce Labs for source code security (parses source, produces internal representation...), SWaudit for continuous software quality audits (parses source, produces internal representation...), EMMA for line coverage (instruments bytecode...), Cobertura for branch coverage (instruments byte code...), Infrared for performance profiling (instruments byte code...)...well, you get the picture.

## STREAMLINING THE PROCESS

So let's think about how to streamline this. Parse source once, create an "openly available and published abstract syntax tree" once, analyze many. Parse byte code, create an "openly available and published internal structure" once, analyze many. Instrument for all data that can be collected at the same time via an "openly available and published" instrumentation framework, collect as much as possible in a single run, then repeat as appropriate (e.g., for performance pro-

filing, footprint analysis, etc.).

Not only would this lower the electric and HVAC bill, but it would also free up a cadre of really smart developers who could be working on the next big thing instead of writing or retrofitting yet another parser.

Eclipse is actually a wonderful, albeit isolated, example of how sharing can move

Susan Kunz



Guest View

an industry forward. By opening the IDE and its APIs, among other things, third-party providers no longer need to roll their own source code viewers, and results of static analysis can be made available in a manner in which they are immediately actionable. Also, developers need not learn multiple tools, which essentially do the same thing.

Other industries have done a much better job architecting engineering processes that ultimately deliver quality products in a timely fashion, delight customers and deliver shareholder value. In automotive engineering, the move from design into engineering (including third-party supplier data), analysis (structural, thermal, electrical and thermoplastics) and simulation (crash testing, wind tunnel, emissions and fuel consumption), on through manufacturing, is—almost—seamless from a data model sharing perspective. We couldn't build the vehicles we do without this type of integration.

Of course, when it comes to embedded software in automotive production, manufacturers struggle with the same issues as the rest of the industry, with software defects representing one-third of all warranty issues, a fraction that is on the rise.

So, if we think about architecting a development and test infrastructure from the ground up, it looks a lot different than the ones we knit together today. Today's product-centric—instead of customer-centric—development leads to tool fragmentation in the market and increased pain for the user, undoubtedly a key driver for shelfware.

With a tabula rasa approach to architecting infrastructure, not only could we solve today's tool fragmentation issues, but we could also realize the concept of automated tool flow, whereby the output of one tool becomes the input of the next. We could take a look at who does what, how and when they do it in the context of globally distributed development and quality assurance teams with nontrivial supplier relationships (the open source community, outsourced relationships, third-party development and verification and validation teams, as well as software certification providers).

We would actually look at an integrated development, quality assurance, project management, governance and software-sustaining schema across the

software development life cycle and optimize for all parties involved in the process. This holistic view, where suppliers know the desired outputs of the ultimate customer, and design process inputs accordingly, would drive infrastructure to be built very differently—architecting not for a product, not even for integration, but for customer value with integrated tool flow as the natural byproduct of such an approach. Yes, this is a business process management and optimization approach to software development. After all, isn't software development a critical enabler to business success and hopefully also a competitive differentiator when it comes to delivering shareholder value?

## MORE WAYS TO MEASURE PROCESS

Such a holistic approach would open up all kinds of possibilities too when it comes to measuring the process, whether it be understanding potential failure modes (what can and will go wrong), completing project risk assessments (to improved software project predictability and identify systemic issues), pinpointing quality issues including those caused by design debt and design marginality (that needs to be dealt with now or later), characterizing the process across individual or aggregated iterations of the software development life cycle (in the interest of continuous process optimization) and continuously assessing software readiness (including readiness for QA test, system integration and field deployment).

Interfaces, APIs and data models that can be logically standardized should be, such as AST, byte code internal formats, APIs for accessing both, as well as build conventions.

Developers, QA and management would be the initial beneficiaries with code intelligence served up on a single silver platter—but only if we can make tools work together. I'm not proposing that this all happen overnight, but from a process architecture perspective, this is not rocket science either. The crux of the matter is that we need to think horizontal integration and tool flow.

If our tools remain siloed and work in isolation, their value is limited. But if we enable process integration across the software development life cycle, we can achieve significant improvements in efficiency, effectiveness and quality. And, by reducing redundant development, we can also accelerate innovation and actually remove the invisible handcuffs that keep us from truly realizing the ever-present "do more with less" goal. Ultimately the big winners are customers who benefit from higher-quality and richer-functioning software, delivered more predictably. ■

Susan Kunz is president and co-founder of Solidware Technologies; before that, she worked at Sun Microsystems.

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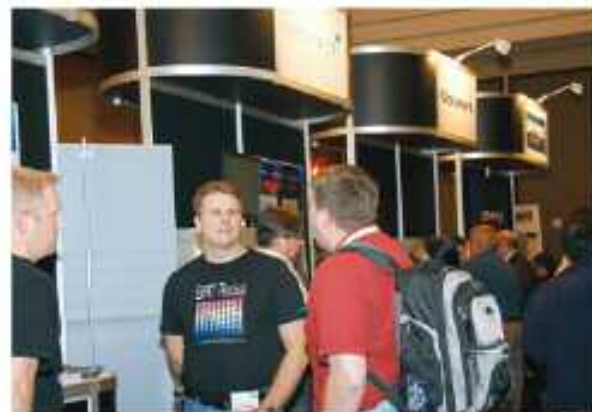
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# Crushed by Technical Debt?

**P**ay off your credit cards every month; it's the single best practice in personal finance. Learning this the hard way is tough—paying off interest and only nibbling away at the principal is a brutal experience. Paying off technical debt can be equally soul-crushing.

The phrase “technical debt” was introduced by Ward Cunningham in the early 1990s to specifically refer to the work that remains after shipping code: that which works but is not quite right (the hard-coded tax rate, the function named `process()`, the fields that are always null). Today, with the much shorter release cycles of the Web-driven world and refactoring IDEs, it makes more sense to think of technical debt as accumulating every time you ignore a “code smell,” and rather than spending whatever seconds or minutes necessary to refactor it away, you decide to live with it.

As with fiscal debt, the problem with technical debt is not its existence or even its instantaneous magnitude. The problem is the interest. If you have code that is harder to understand

than it could be, you pay the interest in slower maintenance and evolution. If you have code that is not robust against reasonably common environmental issues (errors in input format, network and database timeouts, large data sets, etc.), you pay the interest in error analysis and program monitoring (when you hear the phrases “let me check the logs” or “let me watch the run,” you’ve got an interest payment at hand).

The other day I had a prime example: I needed to decouple the concept of a “monthly schedule” from the concept of a month starting on the 1st (and, just to make it interesting, “in leap years, our January schedule ends on the 30th and our February schedule starts on January 31.”). The change to the core data structure went well enough, but the UI has lots of calendars and I needed to touch quite a few pages. One in particular I opened up, Ctl-F’ed my way to the title that I saw in the browser, made the appropriate

modifications, and brought it up in a new browser window. No change in appearance. Hmm... It “only” took me several minutes to realize that the page had two execution paths invoking massive amounts of cut-and-paste HTML and that I had modified only one of the two paths.

Now I faced the same choice the client had. It would have been fast for me to add my modifications on either side of the “if-then.” The result would have been slightly harder to maintain and slightly harder to refactor with confidence. Just as with monetary debt, technical debt compounds over time. Since this was for a client who pays on an hourly basis, the Web developer’s decision to save his employer a few minutes of time ended up costing his employer quite a few dollars.

Technical debt can ruin even the most talented teams. The same smart, capable developers who brought forth fabulous version X can suddenly appear

to be absolutely ineffective because they are spending all of their time paying off their debt. And, of course, the time until the next release is shrinking, making additional technical debt all the more likely.

There’s no doubt that incurring technical debt can be a valid business decision, particularly when winning a client or prototyping. However, there’s also no doubt that if the habit becomes ingrained, serious trouble is inevitable, both for the company and for individual technical managers. In my experience, selling “for the next several months, our effective productivity is going to drop by three-fourths” to executive management is one of the nastiest minefields in software development. Sadly, it’s not uncommon to find teams that descend into the creeping poverty of technical debt rather than make the painful sacrifices necessary to regain full productivity. Don’t let your team be one of those. Have your team pay their technical debts promptly and conscientiously. Once the proper habits are formed, staying ahead is easy. ■

*Larry O'Brien is a technology consultant, analyst and writer. Read his blog at [www.knowing.net](http://www.knowing.net).*

## Windows & .NET Watch



Larry O'Brien

# Patterns as an Anti-Pattern?

**F**or reasons that elude me, the arrival of the book “Design Patterns” in 1995 created enormous interest in the programming industry. The book, now known affectionately as the Gang of Four (or GoF) book due to its having four authors, posited a notion that did not seem radical, but which impressed a lot of people—namely, that there were recurring types of programming problems that could be addressed using a systematic sequence of steps.

That sequence of remedial activities was spelled out by the GoF, and these recipes—or patterns—became the object of considerable study. Exponents, such as former SD Times columnist Allen Holub, went on to say that all 23 GoF patterns should be learned, memorized and used by developers. The goal was that at various points in programs you could refer to the pattern and later developers would know from the name what the code did and how. So, for example, if you described a class as a Façade, everyone would know that class was a front end to some other subsystem.

I like this vision. In pure programming terms, the closest equivalent is collections. When I say that something is implemented as a hash table, you nod knowingly and you don’t need to check out the details of how data items are stored. Unfortunately, the patterns

presented by the GoF never obtained the universal implementation that was required for this vision to succeed.

Moreover, it turns out the patterns had numerous aspects that are questionable or not terribly helpful. Yet the static perception of their enduring value continues on.

First, let’s clarify that what we are talking about are not really design patterns. They are better described as implementation patterns. They are code-level solutions that help you implement a specific action. They are not the domain of architects and designers, but rather recipes for coders who implement designs. GoF patterns are much closer to the concept of refactoring and coding shortcuts than they are to techniques an architect would use in designing a project.

One problem is that some patterns are so obvious as to make you wonder why they would be singled out as an item of interest: for example, the Façade pattern. This pattern basically suggests that when you have to deal with a subsystem that has a complex programming interface, you write a code layer that simplifies your interaction with that system. You then make calls to your interface, which translates

the calls into the complex calls to the subsystem. That is, it’s syntactic sugar. As you can imagine, there is no specific recipe for doing this—the variations are almost infinite, so it’s hard to see how it’s a pattern at all.

The one benefit I detect here is one of nomenclature. I can say to someone

## Integration Watch



Andrew Binstock

I will write a Façade for this subsystem, and they know what I mean.

Another problem is that some GoF patterns that were fairly original have proven to be poor recommendations in practice: for example, the Singleton. The Singleton is a way to jimmy language syntax so that it’s impossible to create more than one instance of a specific class.

Over the years, however, it has become increasingly clear that Singletons have very serious drawbacks that often outweigh the benefit of being assured there’s only one instance. Singletons fly in the face of object orientation and force intricate dependencies, which become an enormous obstacle in testing, especially unit testing. And since developers generally prefer the benefits of good unit testing to the syntactical assuredness of a single instance, many are opting to remove Singletons and replace them with nor-

mal objects. These developers simply make sure that the object is created just once in the production code.

Other patterns are complex enough that they are the subjects of partial implementations. These include the Factory and Abstract Factory patterns, which can require features that are not needed.

Finally, there is the Interpreter pattern, which says that if you need to embed a small language in your software, follow basic rules to build an interpreter. The trouble is that as the pattern lies, the interpreter model that is proposed could only be used for a trivial language. As the GoF points out, for anything more, you need to use compiler building tools. So, why the pattern?

I should note that many of the remaining patterns are useful and frequently used. However, the prevailing view that the GoF is the defining treatment of patterns seriously undercuts the value of patterns in general.

Patterns should evolve over time. There should be new ones added, others dropped, and in all cases thorough testing done before wide promulgation so that what the patterns recommend is truly useful.

When that happens, I believe, we will be able to use, depend on and communicate through patterns in ways that are truly useful. ■

*Andrew Binstock is the principal analyst at Pacific Data Works. Read his blog at [binstock.blogspot.com](http://binstock.blogspot.com).*

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# Have You Made Your Service-Oriented Resolutions?

As the calendar turns to 2008, this is a good time to make some New Year's resolutions around the creation of your SOA, and getting your applications, and enterprise, into a more agile state. Here are some to consider:

**1. Create a core SOA strategy for the enterprise.** While many strategies end up without sponsors or execution, a quick and dirty written-down strategy will provide a base of understanding for the enterprise that this is, indeed, the correct direction and provide an approach for moving forward. From here you can create a plan and request resources. A strategy is a great place to start.

**2. Obtain some SOA training.** SOA is a funny thing. Everyone thinks they understand it, but during execution many projects fail due to lack of knowledge. Now is a good time to take some SOA training, and I'm not talking about some Webinar. I'm talking about a multiday class where you work and share information with others.

This will reap many benefits such as avoiding core mistakes and doing it right the first time. However, there is good training and bad training out there...make sure to check the references of the training provider. You

want to take a course from a practitioner, not a professional teacher; there is a difference.

**3. Review core life cycle procedures and update for SOA.** Most enterprises have software development life cycle procedures set in stone and follow them religiously. However, SOA is a bit different than "traditional" design, development, testing and deployment, so now is a good time to update those procedures to support SOA.

This means dealing with applications as collections of services, not a monolithic application, and that's a very different way of going about software development. Also, revisit resolution No. 2. Retraining would be good here as well.

**4. Create a SOA ROI.** Once you go into your boss' office to ask for the million or so bucks you need to complete your SOA, he or she is going to ask the burning question: What's in this for the business? You'll need a response to that, and it's ROI.

Figuring out the ROI for your enterprise is more art than science, however; in essence, it's to understand

the existing inefficiencies, put a cost to those inefficiencies, and then determine how much savings will come from the use of a SOA.

For the most part, SOAs are all about adding value by making the architecture more changeable or agile. Thus, the more changeable your organization, the more ROI SOA will bring. However, your mileage may vary a lot,

so make sure you create an ROI model that reflects your current business. I've done dozens of these, and they are all different.

**5. Get help.** One of the things I'm finding is that SOA is being driven by IT leaders within the enterprise, and many times the last thing they want is people smarter than them around. It's called job protection, and it's silly and counterproductive.

SOA is complex, difficult and takes a long time. Moreover, it's a bet-the-business kind of project, and you can't fool around with a trial and error process as you did with that data warehouse or ERP implementation you did. It's architecture, it's systemic, and it's important. Thus, at the very least, get

some mentoring assistance—somebody who can look over your shoulder and make sure you're not making critical mistakes. I'm not talking about consultants to do your work, but somebody to validate your work and teach you.

**6. Create a SOA study strategy.** There is a lot out there on SOA: blogs, podcasts, columns, books and a few conferences as well. So, which information do you ignore, and which do you absorb? Now is a good time to look at the resources out there, and create a "My SOA" page that includes blogs, columns, podcasts and other media feeds that you find helpful.

This will both help you learn and stay current with the technology trends. However, make sure you don't become one of those guys who "manage by magazine." Those are mere data points, and not a strategy specific to you.

So, will 2008 be the year of SOA? No, it will be 2008-2015, if you ask me. SOA is a journey, not a project, and there is so much to get done that most of you are feeling a bit overwhelmed. My best advice is to get started; if 2007 slipped away without progress on your SOA, then this is a great time to make some 2008 SOA resolutions. ■

David S. Linthicum is a managing partner at ZapThink. Reach him at david@zapthink.com.



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# Sticking to It

People use the act of turning the page to a new year to make life-altering resolutions. No small stuff here, like vowing to be nicer to other people. These start-the-year-off-right promises to one's self often shoot for the moon: I will quit smoking. I will lose weight. I will free myself of all the things that bring me down.

Practitioners of software development, and the purveyors of tools intended to ease that task, should look in the mirror to see how they can change their lives in the year ahead. Of course, this type of introspection often is difficult. People lack the time, or the honesty to themselves, to accurately assess where they need to improve. So, in the holiday spirit of giving, I have prepared a short list for development managers that can serve as a jumping-off point for resolutions of their own.

**Resolve not to cave in to pressure to adopt new techniques or practices if they don't feel right for your organization.** There has been a lot of talk in recent years about service-oriented architecture, agile development practices and application life cycle management, among other topics, examining how they can simplify development and integration in a Web services world. Corporate suits read about one or more of these, then insist they get implemented in-house ASAP.

But if your shop is running well, with applications getting out the door in a timely manner with minimal errors, there might not be a need to change what you're doing. Let's not forget that many, many successful pieces of software have been rolled out under the waterfall method of

development. Let's not forget that Web services are still in their infancy; that the standards for security, transactions and reliability are new. Also, let's not forget that implementing a service-oriented architecture is enormously complex and will affect your entire software portfolio.

These new technologies can be tough to begin using. There will be cultural barriers, technology barriers and educational barriers standing in the way of success. So be resolute. Stay strong. Just say "no" to SOA, ALM and agile if they're just not applicable to your organization at this point in time.

## Industry Watch



David Rubinstein

At the same time, **resolve to attend a conference this year.** Our industry is moving at a breakneck pace; languages, roles, technologies and methodologies that have been accepted for years are coming under scrutiny like never before. Folks are talking about uses for dynamic languages that heretofore were never considered. Agile, as noted in the second part of a three-part series now running in this newspaper, has changed the way people interact within a software group. While the same ol', same ol' might be fine for your organization for now, you owe it to yourself—and your company—to stay on top of these evolutionary changes. Only at an industry conference can you get face time with peers facing the same hurdles and challenges you are, and with experts who can help you get past those obstacles. You need to explain to your boss that this is money well spent, and that time out of the office, to dive into the subject that's been vexing your teams, is the best way to

keep things moving forward and forward-looking.

**Resolve to avoid undertaking impossible projects that are doomed to fail before they begin.** This can be a tough one, as the residents of the nose-bleed floors of your building will set ridiculous deadlines and seriously underfund or understaff the project. It is your job to explain in the most effective way possible why the new inventory-tracking software can't be rolled out in two weeks using one guy who's also rearchitecting the Web site, which the suits said they needed last week. It's not easy to tell the boss upfront that his expectations are not realistic, but it'll be better nonetheless than watching the deadlines come and go with the answer, "I told you it wasn't doable." That'll just anger the powers that be.

Finally, **resolve to make your team better this year.** This is what really separates good managers from the rest. You have talented people working for you, and some that are less so. Put the strong people in the best position to help the project succeed; work with the weaker links on training, education and whatever it takes to get them up to speed. Perhaps you'll want to pair them up with the strong developers, to get a hands-on experience that will improve their skills. Success under these conditions will go a long way to fight burnout, resentment and the other ugly behaviors that can undermine your team. Make people feel like they have value, and that they are appreciated, and the results will exceed those in an environment where the weaker developers are marginalized, and the strong ones are loaded up like pack mules and ridden harder than Alydar during a stretch run against Affirmed. ■

David Rubinstein is editor-in-chief of SD Times.

## BUSINESS BRIEFS

The market for Linux products and services will grow from US\$2.4 billion in 2007 to \$7.7 billion in 2012, according to a recent report by Ireland-based **Research and Markets**, but growth will slow from 36 percent this year to 17 percent in 2012. Because much of the software for Linux is given away freely, revenues for services will dramatically outpace revenues for software. It is expected that services will account for 81 percent of the Linux market by 2012. Also, the study found that Linux for the desktop will make inroads over the next few years. Currently, the server market accounts for 83 percent of Linux use, but that will slip to 81 percent in 2012, as client-side Linux grows . . . Customer satisfaction with online retail during the 2007 holiday season fell from a year earlier, according to the ForeSee Results Top 40 Online Retail Satisfaction Index. Online sales rose at their slowest pace since their measurement began, and aggregate satisfaction with the leading online retailers scored 74 on a 100-point scale, losing 1.3 percent from a year ago. "Online shopping is still the bright spot for holiday retailers, but lower satisfaction coupled with slower than expected spending growth puts a little cloud over the season," Larry Freed, president and CEO of **ForeSee Results**, said in a statement. "In an economy where consumers are feeling the pinch, there's increased competi-

tion for the customer's dollar. So, it's even more important for e-retailers to meet their customers' needs online." Last year's top-rated Web sites again led the way, with Netflix (86), Amazon (82), L.L. Bean (80) and QVC (80) posting the highest scores. The most improved Web sites from last year include Costco (up 4.3 percent to 72), Zappos (up 4 percent to 78) and Avon (up 3.9 percent to 79). Overall, 10 sites have increased customer satisfaction from last year, while 18 sites saw their scores slip.

**EARNINGS: TIBCO Software** reported fourth-quarter revenue of US\$186.1 million and net income of \$27.6 million, or 14 cents per diluted share, for the period ending Nov. 30, 2007. License revenue was \$99.6 million, 13 percent ahead of the prior year's period, and the company closed a record 139 deals for more than \$100,000. "We finished with a strong Q4 ending the year with double-digit growth," TIBCO chairman and CEO Vivek Ranadivé said in a statement . . . **Oracle** has announced that its second-quarter fiscal 2008 GAAP net income was US\$1.3 billion, 35 percent ahead of the same period last year, and total GAAP revenues were up 28 percent to \$5.3 billion. Revenue from software was \$4.2 billion, with new software license revenues up to \$1.7 billion. ■

## EVENTS CALENDAR

<b>Southern California Linux Expo</b> Los Angeles SCALE INC. www.socallinuxexpo.org	Feb. 8-10
<b>Game Developers Conference</b> San Francisco CMP MEDIA www.gdconf.com	Feb. 18-22
<b>FutureTest 2008</b> New York BZ MEDIA www.futuretest.net	Feb. 26-27
<b>Emerging Technology Conference</b> San Diego O'REILLY MEDIA conferences.oreillynet.com/etech	March 3-6
<b>MIX 2008</b> Las Vegas MICROSOFT www.visitmix.com/2008	March 5-7
<b>BrainShare</b> Salt Lake City NOVELL www.novell.com/brainshare	March 16-21
<b>EclipseCon 2008</b> Santa Clara ECLIPSE FOUNDATION www.eclipsecon.org/2008	March 17-20
<b>Secure Development World</b> Alexandria, Va. SDW www.secureddevelopmentworld.com	March 25-26
<b>SLAM (Sales, Licensing, Alliances &amp; Marketing)</b> Burlingame, Calif. SOFTWARE BUSINESS www.slamconference.com	April 3-4
<b>Developer Relations Conference</b> Redwood City, Calif. EVANS DATA www.evansdata.com/drc	April 7-8
<b>RSA Conference</b> San Francisco RSA www.rsaconference.com/2008/US	April 7-11
<b>MySQL Conference &amp; Expo</b> Santa Clara MYSQL en.oreilly.com/mysql2008	April 14-17
<b>Embedded Systems Conference</b> San Jose CMP MEDIA www.embedded.com/esc/sv	April 14-18
<b>Software Test &amp; Performance Conference</b> San Mateo, Calif. BZ MEDIA www.stpcon.com	April 15-17
<b>Software 2008</b> Las Vegas CMP MEDIA www.software2008.com	April 29-30

For a more complete calendar of U.S. software development events, see [www.bzmedia.com/calendar](http://www.bzmedia.com/calendar). Information is subject to change. Send news about upcoming events to [events@bzmedia.com](mailto:events@bzmedia.com).

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